



THE GLASTONBURY LAKE VILLAGE

PLATE LIX.

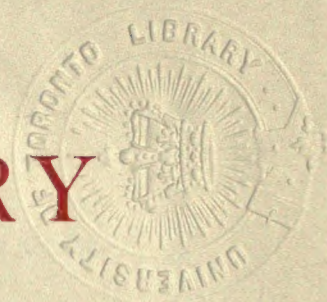


AMBER AND GLASS BEADS, ETC., GLASTONBURY LAKE VILLAGE.

ALL FULL SIZE

From Watercolour Drawings by
Mr. G. Lawrence Bulleid, A.R.W.S.

THE GLASTONBURY
LAKE VILLAGE



A FULL DESCRIPTION OF THE EXCAVATIONS
AND THE RELICS DISCOVERED,
1892-1907.

BY

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the discoverer of the site ; President, Glastonbury Antiquarian Society, 1908-1917.

AND

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WITH CHAPTERS ON

The Human and Animal Remains, by W. BOYD DAWKINS, M.A., D.SC., F.R.S., and
J. WILFRID JACKSON, F.G.S. ; *The Bird-Bones*, by C. W. ANDREWS, D.SC., F.R.S. ;
and *Plants*, by the late CLEMENT REID, F.R.S.

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PREFACE.

BESIDES the expressions of thanks in the Preface to Volume I, we wish to record our indebtedness to the following authors and contributors to Volume II.

In the first place we thank Dr. W. Boyd Dawkins, F.R.S., for having written the three concluding chapters of this work, on "The Inhabitants of the Lake Village," "The Range of the Iberic Race in Britain in the Prehistoric Iron Age," and "The Place of the Iberic Race in British Ethnology"; also for the photographs of the four plates of human skulls accompanying this section of the volume, and for the photographs of the animal remains depicted in Plate XCVII.

We have further to acknowledge our indebtedness to Dr. W. Boyd Dawkins, and also to Mr. J. Wilfrid Jackson, F.G.S., for their valuable chapters on "The Remains of the Mammalia found in the Lake Village."

In connection with the chapter on the Pottery discovered in the Village, we have been kindly assisted by the correspondents mentioned in a footnote on page 497; and we are specially indebted to Mr. Thomas May, F.S.A., for the drawings giving the elevation and section of each shape (Plates LXXV and LXXVI).

Our thanks are also due to Mr. G. Lawrence Bulleid, A.R.W.S., for the water-colour drawings of the Glass and Amber Beads, forming the frontispiece to this volume.

The greater number of the Iron Objects and some of the fragments of Pottery were kindly drawn by Mr. Rupert C. Austin, A.R.I.B.A.

We gratefully acknowledge the kind help we have received from Prof. C. Lloyd Morgan, F.R.S., who examined and determined the geological formation of the Millstones; and Mr. J. Allen Howe, B.Sc., and Dr. H. H. Thomas, of the Museum of Practical Geology, Jermyn Street, S.W., for their reports on geological and pottery specimens.

It is with pleasure we record the valuable assistance we have received from Mr. Albany F. Major in reading the proof-sheets of Volume II. In this work he kindly filled the breach caused by the lamented death of the Rev. C. W. Whistler, who rendered similar assistance with Volume I.



With very few exceptions the illustrations in both volumes have been reproduced by the Watford Engraving Company, under the supervision of Mr. Francis W. Reader.

In conclusion we hope the exhaustive Index to the volumes will be found useful to other workers in this field of research.

ARTHUR BULLEID,
H. ST. GEORGE GRAY,
Joint Editors.

ERRATA.

(See also Vol. I, p. xxvii).

- Page x, *add at bottom*, "X. = Worked Wood."
Page xvi, line 1, and Page 184, Fig. 42 (in title), *omit* "III."
Page xxii, line 3, for "Brown" *read* "Browne."
Page xxii, line 13, for "Burnand" *read* "Burnard."
Page 33, line 16, for "répondu" *read* "répandu."
Page 111, line 10, for "nine" *read* "ten."
Page 111, line 11, for "three" *read* "five."
Page 193, footnote 2, for "Beauvray" *read* "Beuvray."
Page 228, line 7, for "XLI" *read* "XLIH."
Page 279, lines 23-24, for "parish of Haltwhistle" *substitute* "or Halton Chesters."
Page 296, line 23, for "H 72" *read* "H 272."
Page 316, line 14, after "shape" *insert* "(Fig. 73)."
Page 409, line 10, for "10½ft." *read* "11½ft."
Page 497, line 35, for "Batton" *read* "Batten."
Page 559, line 24, the "f" in "perforated" is missing.
Page 610, line 35, for "the latter" *read* "another from Cleeve Hill, Old Cleeve."
On Plate LXIV, "H 266" *should be* "H 226."
On Plate LXX, P 192, the scale " $\frac{1}{2}$ " *should be* " $\frac{1}{4}$."
On Plates  and , "Chwaren" *should be* "Chwareu."

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No specimen of amber appears to have been discovered in the Late-Celtic Camp of Hunsbury, but amber beads have already been found in the Meare Lake Village. Several ring-beads of amber were discovered in 1879 at Birdlip, Glos., in association with a Late-Celtic mirror, etc.;¹ one of dark colour was found in Heathery Burn Cave, Co. Durham;² and another in a crannog near Clones.³ But as amber beads of the Bronze, Early Iron, Roman and Saxon periods have been commonly found in Britain, it is unnecessary to give further references here.⁴

As was the case with the Kimmeridge shale objects, the beads of glass and amber were found to be more or less evenly distributed over the Village area, sometimes on the floors of the dwellings, and sometimes under the clay amongst the substructure, piles and timber; three of the glass beads were found on the surface of Mound VII. From these facts it will be safe to assert that the lake-villagers were acquainted with these materials during the whole period of the occupation of the Village.

Three different forms of glass beads have been found in the Village, viz., (1) the ordinary globular variety, (2) the globular form with slightly raised bosses,⁵ and (3) the ring-shaped form. Seventeen examples have been found of (1); three of (2), and four of (3). Most of the beads are illustrated in colour in Plate LIX, and a few of them are figured in Vol. I (Plate XLIV, and p. 246). The true shades were obtained by holding the beads up to a strong light, and the drawings therefore give them a greater brilliancy of colour than can be seen by an inspection of them in the Museum cases at Glastonbury. The body of all the beads with two exceptions (G 18 and G 25) is composed of clear glass of a variety of colours,—different shades of blue, sea-green, light and dark yellow, clear white, etc., but

1. *E.I.A. Guide, B.M.*, 1905, 115; *Archæologia*, LXI, 332; *Trans. Bristol and Glos. Arch. Soc.*, V, 137-141, and Plate xiv.

2. *Archæologia*, LIV, 106.

3. *Proc. Soc. Antiq. Ireland*, XXX, 225, fig. 7.

4. Upward of three hundred amber beads were found with the famous gold peytrel at Mold, Flintshire (see Introductory Chapter, vol. I, 34).

5. A dark blue bead with white spirals on slightly raised bosses, similar to those from the Village, but rather larger, was found in Hunsbury Camp (Northampton Mus.). Another of the same kind, still larger, was found near Waldron, Sussex, and is exhibited with the Late-Celtic remains in the Ashmolean Museum. A part of another large blue bead with white scrolls on raised bosses was found at Swanage (Bristol Mus.).

The writer has not attempted to give a complete list of glass beads found in Britain in association with objects of the Late-Celtic period. Mention, however, should be made of four Late-Celtic beads of glass found at St. Cuthbert's Lead Works on the Mendips in 1908; a number of glass beads (some apparently of Celtic type) found at Charterhouse-on-Mendip (Bristol Mus.); another (broken) found in Wookey Hole (*Archæologia*, LXII, 567, 579); and a dark blue globular bead found in association with Late-Celtic remains at Worlebury Camp, Weston-super-Mare (Taunton Mus.,—"Worlebury" by C. W. Dymond, 2nd edit., 1902, Plate x, fig. 15). Other glass beads of the period have been found on Ham Hill (Taunton Mus.).

the blues greatly predominate.¹ Ornamentation in vitreous paste is mentioned in the separate descriptions of the beads.

The largest perfect glass bead found in the Village has an external diameter of 31mm., but G 21 was 34mm. in diameter when complete. The smallest bead has an external diameter of only 6.6mm.

The ring-shaped beads are of great interest and have been found on other Late-Celtic sites. Paul Reinecke regards them as dating from the late La Tène period and figures one found with a cinerary urn at Heidesheim, Bingen, Rheinhessen.² Among other places these ring-shaped beads have been found, in association with relics of Late-Celtic type, at Belbury Camp (near Poole),³ Hunsbury Camp (Northants),⁴ Ham Hill (S. Somerset), and in a crannog at Clones (Ireland).⁵ Ham Hill has produced several beads, one being of the flat ring-shaped form, composed of pale yellowish-green glass.⁶ Five of these glass rings were found at Hunsbury, two of them being as much as an inch in external diameter.⁷ Those from Glastonbury are numbered G 3, G 4, G 24 and G 25, the detailed description of which follows.

Plate LIX also includes the only object of jet found in the Village. This highly polished ring, which may have been used as a bead, has already been described with the objects of Kimmeridge shale in Vol. I, p. 261, where a line-drawing of it is given.

1. Near the head and upper part of the body of a female skeleton found in the "Queen's Barrow," Arras, about 100 beads were found, mostly of a deep blue colour and ornamented with rings or spots of white. Some of these beads are figured and described by Canon Greenwell in *Archæologia*, LX, 296.

"Professor Buckman, in 1851, analysed a specimen of the numerous beads of blue glass discovered in the Iron-age barrows of Yorkshire. It was of a Prussian blue colour, with three circular grooves round the circumference filled with white paste. It fused only at a very high temperature, a fact explained by the absence of lead in its composition; and was found to contain silica, potash, soda, oxide of iron, a small quantity of alumina, traces of lime and magnesia, and oxide of copper. This last was used as colouring matter, and according to the method of combining and manipulating it, is capable of producing yellow, ruby, green, and blues of various shades." (*E.I.A. Guide, B.M.*, 1905, p. 107).

2. *Die Altertümer Unserer Heidnischen Vorzeit*, V Band, Taf. 14, fig. 243b. Glass beads of the La Tène I and II types are figured by Déchelette, *Manuel d'Archéologie Préhistorique Celtique et Gallo-Romaine* (1914), p. 1315, fig. 573.

3. Two of these ring-shaped beads, and six of a smaller kind, of transparent amber glass, were found at Belbury. (*Archæologia*, XLVIII, 116, and Plate vi, 10). These are exhibited in the Dorset County Museum.

4. Figured in *Reports, Assoc. Architect. Soc.*, XVIII, Plate iv, 10-14.

5. *Proc. Soc. Antiq. Ireland*, XXX, 225, fig. 5.

6. Found associated with Late-Celtic remains on Site B '07; and now in Taunton Castle Museum (Walter Collection).

7. One is of a pale, dirty yellow; another dull greenish-yellow; and a third pale bronze colour,

DETAILED DESCRIPTION OF OBJECTS OF AMBER AND GLASS, CHIEFLY BEADS,
FOUND IN THE LAKE VILLAGE.

A 1. Amber bead, complete; clear orange; ext. diam. 20mm.; diam. of perforation 5.3mm.; the material of oval section 5.1 by 7.5mm., with a rather sharp ridge round the middle of the edge.

Found 10 $\frac{3}{4}$ ft. to the N.E. of the c.p. of Mound LXIV, 1892.

Figured in Plate LIX.

A 2. Clear orange amber bead of irregular form, the ext. diam. varying from 12.5 to 14.8mm.; max. thickness 7.8mm.; diam. of perforation 5.5mm.

Found 12 $\frac{1}{2}$ ft. to the W.S.W. of the c.p. of Mound XLIV, 1893.

Figured in Plate LIX.

A 3. Small fragment flaked off an amber bead; smooth, and of orange colour.

Found 8ins. deep in the peat, 15 $\frac{1}{4}$ ft. to the S.E. of the c.p. of Mound XLIV, 1893.

Figured in Plate LIX.

A 4. Small amber bead, translucent orange; ext. diam. 7.5mm.; thickness 4.3mm.; diam. of hole 2.2mm. It has flattened ends and bevelled edges.

Found to the N.E. of Mound LIV, near the E. margin of the patch of rubble stone, 1904.

Figured in Plate LIX; also in Plate XLIV (Vol. I).

A 5. Complete amber bead, translucent orange, found in two pieces 1 $\frac{3}{4}$ ft. apart, but now joined; ext. diam. 23mm.; thickness 6mm.; diam. of hole 6.5mm.; section oval. There is a slight concavity on the edge of the bead for a distance of 7mm., showing considerable signs of wear. There are flaws in this specimen which do not detract from its brilliancy and produce more reflected light.

One piece was found outside the margin of the second floor of Mound LXXV in black earth, 17 $\frac{1}{2}$ ft. to the N.N.E. of the c.p., 1907. The other half was found 1 $\frac{3}{4}$ ft. to the S.E. of this point.

Figured in Plate LIX; also in Plate XLIV (Vol. I).

G 1. One-third of a large dark blue translucent bead, ornamented with spirals of white enamel or vitreous paste; thickness of bead 12.5mm. G 5, G 9, G 11 and G 20 are similar.

Found 9 $\frac{1}{2}$ ft. to the N. of the c.p. of Mound LXII, 1892.

Figured in Plate LIX.

G 2. About one-third of a large dark blue translucent bead, thickness 11mm.

Found 15ft. to the E. of the c.p. of Mound LXV, 1893.

Figured in Plate LIX.

G 3. About one-half of a ring-shaped bead of sea-green glass, the substance being of plano-convex section, 5.5 by 3.7mm. The bead was originally 21mm. in diam.

Found 7ft. to the N. of the c.p. of Mound LXII, 1893.

Figured in Plate LIX.

G 4. Ring-shaped translucent bead of dark yellow colour, perfect. The substance is of plano-convex section and is of similar type to G 3 and G 24. It is not quite circular, but varies in ext. diam. from 22.5 to 21.5mm. The thickness of the bead varies from 6.2 to 7mm. The edges bear signs of prolonged use.

Found 15ft. to the S.E. of the c.p. of Mound XLIV, 21ins. below the surface and 8ins. deep in the peat, 1893.

Figured in Plate LIX.

G 5. About one-quarter of a large blue translucent bead, of the same type as G 1, G 9, G 11

and G 20;¹ ornamented with spirals of white enamel or vitreous paste. As in G 9 and G 20, the spirals occur on slightly raised bosses. Thickness of bead 15.6mm.

Found 9ft. to the N. of the c.p. of Mound LXII, 1892.

Figured in Plate LIX.

G 6. - Small pale blue translucent bead, of rough workmanship, varying in ext. diam. from 10.5 to 11mm.; thickness varies from 5 to 5.9mm.

Found on the surface of Mound VII, 9ft. to the S.W. of the hearth, 1894.

Figured in Plate LIX.

G 7. Fragment of a glass bead of a mauve shade; translucent.

Found on the surface of Mound VII, 6½ft. to the S.W. of the hearth, 1894.

Figured in Plate LIX.

G 8. Globular bead of green translucent glass; max. ext. diam. 16.2mm.; thickness 13.3mm.

Found on the surface of Mound VII, 6½ft. to the N.E. of the hearth, 1894.

Figured in Plate LIX.

G 9. Half a large bright blue translucent bead, of the same type as G 1, G 5, G 11 and G 20; ext. diam. 24.5mm.; thickness 16.8mm.; the hole (8mm. diam.) is somewhat excentric. Ornamented with four spirals of white vitreous paste, each on slightly raised bosses.

Found 3ft. to the S.W. of the c.p. of Mound XX, 1894.

Figured in Plate LIX.

G 10. Large round bead of bright blue translucent glass; much abraded from prolonged use, but otherwise perfect; ext. diam. 30.5 to 31.3mm.; diam. of hole about 9mm.; thickness of bead 12mm. This is the largest perfect bead found in the Village.

Found 5½ft. to the S.E. of the c.p. of Mound XLIX on the second floor, 1894.

Figured in Plate LIX.

G 11. Fragment of a large dark blue translucent bead, ornamented with a spiral of white enamel.

Found 12½ft. to the S.W. of the c.p. of Mound XXII, 1895.

Figured in Plate LIX.

G 12. Fragment of a bead of translucent blue glass, with traces of a spiral of white vitreous paste.

Found 6¾ft. to the S. of the c.p. of Mound LIX, 1895.

Figured in Plate LIX.

G 13. Blue translucent bead, complete; ext. diam. 10.5mm.; thickness 6.5mm.; diam. of hole 4mm.

Found 5ft. to the N.E. of Hearth 1, Mound LVIII, 1896.

Figured in Vol. I, Plate XLIV.

This bead is now in the British Museum.

G 14. About one-third of a large bead of translucent glass, of a purplish-brown shade; it is veined all over the outer surface with streaks of a cream-coloured vitreous paste or fused glass,² somewhat in the same fashion as G 21. The ext. diam. of the bead when complete was about 29.5mm.; thickness of bead 13.5mm.

1. A very similar type of blue and white bead was found at Hengistbury Head, Hants. (see *Report on the Excavations*, p. 62, and Plate xxx, fig. 21).

2. A similar bead with yellow streaks found on Salisbury Plain is exhibited in the Ashmolean Museum with Late-Celtic remains ("Nenia Britannica," Plate xxi, no. 2, fig. 3). Part of another bead of similar type and colour was found in the excavations at Hengistbury Head, Hants. (*Report on the Excavations*, 1915, p. 62, and Plate xxx, fig. 20).

Found among the brushwood and piles, 38½ft. to the s. of Mound V, 1896.

Figured in Plate LIX (two views).

G 15. Small blue translucent bead, the smallest found in the Village; ext. diam. 6.6mm.; thickness of bead 2.5mm.

Found 24ft. to the E. of the c.p. of Mound IX, 1896.

Figured in Plate LIX.

G 16. Small blue translucent bead, of the same type as G 15; ext. diam. 7.9mm.; thickness 3.2mm.

Found 8ft. to the E. of the c.p. of Mound IX, 1896.

Figured in Plate LIX.

G 17. Small globular bead of pale blue opaque glass, without ornamentation. Ext. diam. 8.6mm.; thickness 6.3mm.; diam. of hole 3mm. No other bead of this kind was found in the Village; and we regard this specimen as modern.

Found 8ft. to the s. of the c.p. of Mound III, among the timber 2ft. below the level of the clay, 1896, where it had probably been "planted" by one of the workmen.

G 18. Complete bead of a slaty-blue vitreous glass, opaque; ornamented round the edge by an inlaid serpentine band of indigo-blue coloured glass. Ext. diam. varies from 16.5 to 18mm.; thickness 9.5mm.; hole about 7mm. in diam.

Found on the second floor of Mound XI, 7ft. to the s.w. of the c.p., 1897.

Figured in Plate LIX.

G 19. Large pin-head of pale green translucent glass, of rounded form, the base having been considerably filed down; diam. 20mm.; max. thickness 13mm. Judging from corrosion an iron pin must have penetrated the entire thickness of the ball, and it appears to have been fixed into position by lead run into the intervening space between the pin and the cylindrical hole through the glass.¹ It is badly cracked and slightly chipped in places.

Found 8½ft. to the n.w. of the c.p. of Mound XXXVIII, 1898.

Figured in Plate LIX.

G 20. Fragment of a large dark blue translucent bead of the same type as G 1, G 5, G 9 and G 11; ornamented with two spirals of white vitreous paste, each on slightly raised bosses. Thickness of bead 15.5mm.

Found 9½ft. to the n.w. of the c.p. of Mound XXXVII, 1898.

Figured in Plate LIX.

G 21. One-half of a large bead of dark yellow translucent glass, veined all over the outer surface with oblique streaks of a chrome yellow vitreous paste, somewhat in the same fashion as G 14. The ext. diam. of the bead when complete was about 34mm.; thickness 15.2mm. This specimen is the largest broken bead found in the Village.

Found on the first floor of Mound XXIX, 4¼ft. to the E.S.E. of the c.p., 1898.

Figured in Plate LIX.

G 22. Bead of clear white glass, the sinuous grooves running round the sides being filled with yellow fused glass or vitreous paste;² ext. diam. 11.2mm.; thickness 10mm.; diam. of hole 4.6mm.

Found 19½ft. to the s. of the c.p. of Hearth 1, Mound LV, 1904.

Figured in Plate LIX; also in Plate XLIV (Vol. I).

1. In York Museum two opaque glass balls pierced by bone pins are exhibited.

2. Two similar glass beads were found at the Glenluce Sands, Wigtonshire.

G 23. Piece of fused glass, of irregular form, to which some corroded bronze adheres.

Found 4ft. to the s. of the c.p. of Mound LXX, among the fire-ash under the clay floors, 1905. [The first dwelling erected on this site appears to have been destroyed by fire, p. 155].

G 24. Bead of clear pale greyish-green glass, ring-shaped like G 3 and G 4. It is not quite circular, the ext. diam. varying from 21.2 to 23mm.; int. diam. 10 to 11mm.; the section of the substance is round.

Found in trenching 26ft. to the s.w. of the centre of Mound LXXX, 1905.

Figured in Plate LIX, and in Vol. I, p. 246, Fig. 48.

This bead is now in Taunton Castle Museum.

G 25. Ring-shaped bead of perfectly opaque porcellaneous glass of a bluish-lead colour; ext. diam. 12 by 13mm.; max. thickness 3.7mm.

Found 9ft. to the s.e. of the c.p. of Mound XXXVII, 1898.

Figured in Plate LIX.

G 26. About three-eighths of a small translucent blue glass bead, 6mm. deep, and originally about 9.5mm. in diam.

Found on the surface of the clay of Mound LXXXIV, 7½ft. to the n.n.e. of the c.p., 1907.

G 27. Lump of pale greenish-blue glass slag, of irregular form; max. length 25mm.

Found in Mound LXV, 1892.

Figured in Plate LIX.

CHAPTER XI.

OBJECTS OF IRON.

By H. ST. GEORGE GRAY.

ALL the objects of iron found in the Village and outside the border-palisading are dealt with in this chapter, with the following exceptions:—The two iron currency-bars, Z 2 and Z 3, described in Chapter XII, and five finger-rings of iron, I 6, I 15, I 29, I 37, and I 67, described in Vol. I, pp. 216–7, with the bronze finger-rings, three of them being figured in Plate XLI. The prefix “ I ” denotes “ Iron.” The following is a summary of the objects included in this chapter:—

NAME OF OBJECTS.	NO. FOUND
Daggers (or parts)	3
Spear-heads	3
Fragment of Sword	1
Knives	13
Bill-hooks	8
Reaping-hooks or Sickles (including a coulter ?)	6
Saws	4
Gouges	4
Adzes	7
Files and Rasps	7
Awls	2
Bolts	2
Nails and Rivets	4
Key or Latch-lifter	1
Chape	1
Horses' Bridle-bits	4
Rings (large and small) ¹	11
Finger-rings (Vol. I, Plate XLI, pp. 216–7)	5
Miscellaneous	23
Total	109

If this table is compared with the corresponding one for bronze objects in Vol. I

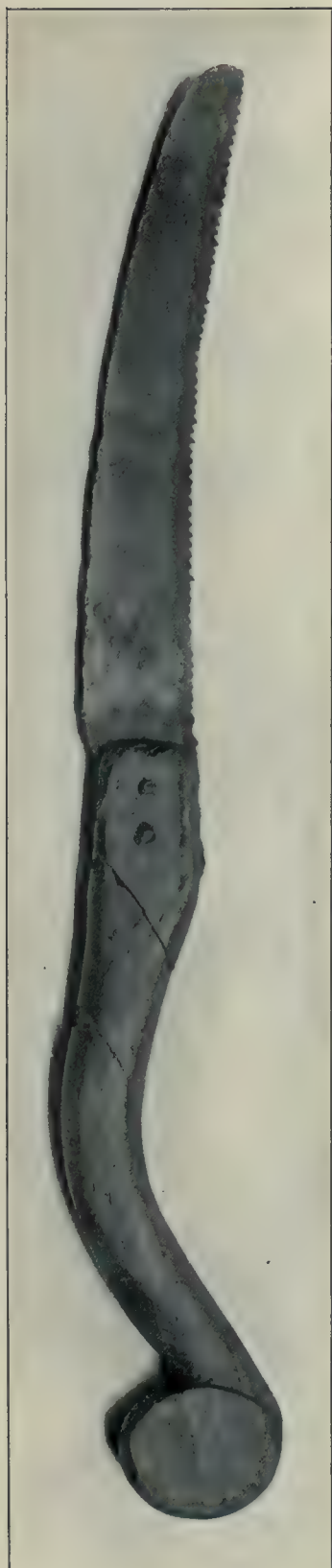
1. Part of an iron ring, unnumbered, was found below the clay of Mound LXXIII.

I53

I42

I50

PLATE LX.



$\frac{1}{2}$



I48

I51

I49

$\frac{1}{3}$

IRON IMPLEMENTS WITH WOODEN HANDLES, FOUND IN THE GLASTONBURY LAKE VILLAGE.

W. Tully, photographer, Glastonbury.

(p. 177), it will be seen that of the 274 bronze relics no less than three-eighths are connected with personal ornament and dress, whereas only five specimens of iron (finger-rings) come into the same category.

On the other hand no cutting-tools of bronze were found in the Village, whereas no less than 49 out of the 109 iron objects were implements having cutting-edges. This is, of course, only what would be expected, seeing that iron-working had become fairly well established in Britain during the occupation of the Village. It should also be observed that a combination of the two metals, bronze and iron, occurs only in a very few instances.¹

Of smaller tools and accessories we find bronze and iron in about equal proportions. The same may be said of the ring-shaped objects (other than finger-rings). It is somewhat surprising that not a single example of an iron fibula was discovered, and although bone needles were plentiful and a few of bronze were found, iron needles were conspicuous by their absence. The horses' bridle-bits were of iron, the harness ornaments of bronze.

The iron objects from the Village, of considerable interest in themselves, are rendered all the more important from the fact that several specimens were found in a more or less complete state, fitted in several instances to their wooden handles—some of ash, others of oak—which alone testify to the skill of the Late-Celtic carpenter. These will be described in this chapter.² Among antiquarian remains of Roman and later times iron implements are very commonly found, but from very few sites in Britain have the handles of these tools been recovered. Thanks to the preservative properties of the peat at Glastonbury the archaeological world has been presented with interesting revelations in this connection (Vol. I, p. 310). Wooden handles for iron tools are figured in Vol. I, Figs. 66, 79, 88, 107, 117, 122, 126, 134, etc.

The number and variety of the objects of iron from the Village are disappointing when we consider the probable period during which the Village was occupied, the area covered by the settlement, and the number of dwellings which were known to exist. Indeed the ninety mounds and the ground between them produced only ninety iron objects, the remainder, viz., nineteen, being found outside the border-palisading and among the piles of which it was formed.³ This gives an average

1. The tubular rim of the bronze bowl, E 19, encloses an iron ring (Vol. I, p. 180); one at least of the horse-bits appears to be plated with thin bronze, p. 390; and the tubular ring, E 194, may enclose a framework of iron (Vol. I, p. 228).

2. The writer is indebted to Mr. Bulleid for the measurements of the wooden handles attached to iron implements.

3. The exact deposits in which sixty-six of the iron objects were found are known, viz., ten from first floors of dwellings, nine from second, five from third, two from fourth, one from fifth, one from seventh, and one from eighth, floors; thirty-six specimens are definitely known to have been found in the black earth or peat under the clay or in the neighbourhood of the border-palisading or outside the Village area.

of one iron relic to each mound, but as a matter of fact iron objects were found in connection with thirty-four dwellings only. These relics were, however, fairly evenly distributed in the various quarters of the Village, although no iron was found in the N.E. and S.W. areas; the northern and southern extremities of the Village proved most productive of the metal.

By far the greatest number of iron objects found in a single dwelling was in Mound V which produced fifteen numbered specimens (Plan, Vol. I, Plate VII) and a few nondescript fragments besides,¹ whilst Mounds IV, LXIV and LXXIV each provided eight objects; six iron objects each were found in Mounds XVIII and XLII. Mound LXXIV produced no less than four knives, and two of the eight bill-hooks were found in Mound XLII. Of the six sickles the position of one was not recorded, but the others were confined to three dwellings, viz., Mounds V, XLI and XLVIII. Again, two of the seven files were discovered in Mound LXXIV, whilst another was found in the adjacent dwelling, Mound LXXV. The seven adzes were even less scattered, three being found in Mound IV and two in Mound LXI. (The position of all of them is marked on the plan sheets in Vol. I).

In considering the scarceness of iron as compared with bronze we must recollect that the conditions prevailing in so wet a site as the Lake Village are entirely opposed to the preservation of this metal during the period of two thousand years which has elapsed, and it is a matter of some surprise that the objects have not corroded even to a greater extent. Generally speaking the iron objects, when taken from the peat outside the palisading, have been found in good condition, requiring little or no cleaning; but those found in contact with the clay floors of the dwellings, with few exceptions, have been removed from the excavations as almost indescribable masses of corroded iron, which had of course stained the surrounding ground to a very appreciable distance. It has already been recorded (Vol. I, pp. 178-9) that the bronze relics were covered with an iron-rust-coloured substance when found, instead of the ordinary green staining of bronze; but the stain caused by the iron objects was more considerable.

Some of the iron specimens occupied several hours in cleaning and then the greatest care was necessary to avoid breaking them in the process. It is no exaggeration to say that sometimes objects of iron were on discovery twice and even three times their original dimensions, owing to the enormous accumulation of rust, causing a proportionate weakening of the true metal and a very considerable reduction in the original weight of the object after cleaning. It was our habit, when time permitted, to remove the outer coating of rust directly after the discovery of the object; the labour of cleaning was somewhat lessened in this way. In some cases the oxidation was so great that it was at first impossible to define

1. Several objects of iron were not numbered owing to their badly corroded and damaged condition. Amongst other dwellings, such fragments were collected from Mounds IV, V and IX.

the true outline of the original object, but, with perseverance and much care in removing rust only and avoiding the comparatively soft "core," we were often rewarded by a fair example of a knife, bill-hook, adze or other tool. In other instances only waste of labour and disappointment resulted, and frequently it was found that a very small nondescript fragment of iron had expanded during the long interval of time which had intervened since its deposition to the size of a hen's egg.

Remains of primitive furnaces for smelting were discovered in the Village on the fifth floor of Mound V, and on the second floor of Mound LXII, as previously described (Vol. I, pp. 72, 143, 303, 309). Crucibles were found in both situations; also the greater part of two *tuyères*,—conical tubes or funnels through which air is conducted into furnaces by means of bellows (see Plate XLIX, D 30).

The *scoriæ* and unfinished articles of iron found in the dwellings alone prove that the inhabitants had forges and means of smelting. A number of such fragments were collected, but their exact *gisement* is not known. A large piece of iron slag was found in Mound LXXI (p. 157), several fragments were uncovered on the third floor of Mound LXXVI (p. 167), and traces of slag were observed on the third floor of Mound XVIII (p. 92). Other smaller pieces have been noticed, but we know little of the methods by which the villagers smelted their iron, nor do we know as yet the sources from which the material was obtained.

In the *Victoria County History, Somerset*, we are informed that "Iron ore is widely distributed in the County of Somerset, but though there are clear indications that in several quarters it was mined and smelted at an early period, documentary evidence is slight. According to tradition the spathose ores of the Brendon Hills were worked by the Romans. There is some probability of this, although the tools found at Luxborough may quite possibly belong to miners of a later time."¹

Broadly speaking, antiquities of iron of similar type to those from Glastonbury have been found amongst other places, at Hunsbury Camp (Northants), Bigbury Camp (Kent), Hod Hill (Dorset), Ham Hill (Somerset), Mount Caburn and Cissbury (Sussex), Newstead (Scotland), Oare (Wilts), Wookey Hole (Somerset),² the Romano-British Villages of Woodcuts and Rotherley (N. Dorset and S. Wilts), Harborough Cave (Derbyshire), in the Thames near London, and in some of the crannogs of Scotland and Ireland, etc.

1. *Proc. Som. Arch. Soc.*, VIII, i, 18, and Plate ii, in which an iron pick-axe and three wooden implements are represented. They are to be seen in Taunton Museum.

2. Sixty-one specimens of iron were found in the Late-Celtic and Roman layers ("Wookey Hole," 1914, 86).

WEAPONS OF OFFENCE.

The scarcity of weapons is most striking, even for those whose time (like the lake-dwellers) was occupied in pastoral and industrial pursuits. Of the 109 objects of iron only seven can be classed under this heading. The most interesting specimen is the complete dagger, I 2, Plate LXII, described on p. 380, with references to one or two weapons of a similar character. I 13, Plate LXII, appears to be a fragment of a sword handle.

Two of the three spear- or javelin-heads are much corroded, the best example being I 42, Plates LX and LXII. Two somewhat similar spear-heads were found in Harborough Cave,¹ and two others in Bigbury Camp, Harbledown, Kent.² Several iron spear-heads were discovered in Hunsbury Camp.³ Others have been found in association with Late-Celtic remains on Ham Hill, Somerset,⁴ on Hod Hill, Dorset,⁵ and at Worlebury Camp, Weston-super-Mare.⁶

That sword and dagger sheaths were in use in the Village we are certain, as much bronze bordering for the purpose of binding the edges was found in the Village (pp. 232-3), and three chapes or terminals for the sheath, one being of iron, I 66, Plate LXII; the others, E 107 (Plate XLIV) and E 247 (Fig. 43, p. 190), are of bronze.

KNIVES.

Turning to knives there are thirteen specimens, which were no doubt chiefly used for domestic purposes, although some of them may have served as weapons in the chase and otherwise. The condition of some of the knives is fairly good, and it has been possible to figure eight of them in Plates LX and LXI, and in Fig. 137. One specimen at least, I 45, appears to be double-edged, but some of the knives are so fragmentary and corroded that it is impossible to classify them in this respect. The largest tanged knife, I 100, Fig. 137,⁷ is 11 ins. in length. The narrow knife, I 4, Plate LXI, has an extremely thick back for the width of the blade, and is interesting in being grooved longitudinally on both faces.

1. *Journ. Derbysh. Arch. and N.H. Soc.*, XXXI, 112.

2. *Arch. Journ.*, LIX, 214, Plate i.

3. *Reports, Assoc. Architect. Socs.*, XVIII, Plate vi.

4. One figured in *Proc. Som. Arch. Soc.*, XXXII, i, Plate ii, fig. 8.

5. *Cat. Durden Coll.* (Payne), 1892.

6. "Worlebury," by C. W. Dymond, F.S.A., 2nd edit., 1902, Plate ix, fig. 4. The best of the Worlebury "finds" are in the Museum at Taunton Castle.

7. Also drawn in outline in Déchelette, *Manuel d'Archéologie Préhistorique Celtique et Gallo-Romaine* (1914), p. 1362, fig. 598, no. 5.

Although I 48, Plate LX and p. 382, is described with the knives, it should perhaps have been included with the sickles, but the blade is too fragmentary to classify it with certainty. It is of special interest on account of its being discovered attached to its handle of oak; the shaft is distinctly grooved where the ferrule was driven on.

In connection with the iron knives it should be mentioned that a number of well preserved knife-handles of antler were found in the Village, some still having the tang of the knife in position fixed by means of iron rivets; these will be described in the chapter on objects of antler.

Knives comparable with those from the Village were found at Hunsbury Camp, including one or two having antler handles.¹ Two Late-Celtic knives were found by General Pitt-Rivers at Mount Caburn.² Both Hod Hill (Brit. Mus.)³ and Ham Hill (Taunton Mus.) have produced similar knives to those found at Glastonbury. A curved knife somewhat similar to I 100 was found at Wroxeter;⁴ and one of exactly the same type was discovered on Ham Hill, Site D.⁵ Another was found in the Wandle at Wandsworth (London Mus., Lancaster Ho.).

Other knives similar to some of those found in the Village have been unearthed at Hartlip (Kent),⁶ on Rushall Down⁷ and Cold Kitchen Hill (Wilts),⁸ in the Romano-British village of Woodcuts (N. Dorset),⁹ in one of



FIG. 137.—IRON OBJECTS FOUND IN THE GLASTONBURY LAKE VILLAGE, 1906-7.

I 98. Small file.	I 100. Large curved knife, with tang.
I 102. Large file.	I 105. Narrow curved knife-blade.
I 108. Long bolt.	

From Drawings by Mr. E. Sprankling.

1. *Reports, Assoc. Architect. Socs.*, XVIII, Plate vi.
2. *Archæologia*, XLVI, Plate xxiv, figs. 6 and 7.
3. *Cat. Durden Coll.*, Plate vi, fig. 8; *Collect. Antiqua*, VI, 7; *Journ. Brit. Arch. Assoc.*, XLVII, 60, fig. 6.
4. Anderson's "Uriconium," Plate xii, fig. 1.
5. *Proc. Som. Arch. Soc.*, LVII, i, 114.
6. *Collect. Antiqua*, II, Plate vii, fig. 6.
7. *Cat. Devizes Mus.*, pt. 2 (1911), Plate xxx, fig. 11.
8. *Op. cit.*, Plate xlv, fig. 20; *Wilts Arch. Mag.*, XXVII, 285, fig. 5.
9. P.R. *Excavations*, I, Plate xxiii, fig. 7.

the Settle Caves (Yorks),¹ in Wookey Hole (Somerset),² in Harborough Cave (Derbyshire),³ at Lincoln,⁴ etc.

Knives with deeply curved cutting-edges are amongst the iron objects discovered at La Tène, Lake of Neuchâtel.⁵ Another narrower in the blade was found in the Lochlee Crannog, Tarbolton, Ayrshire.⁶

BILL-HOOKS.

The Late-Celtic bill-hook, or "hedge-slasher," is well represented among the iron objects from the Village, no less than eight examples having been found. Four of them (I 9, I 17, I 49, and I 76) are illustrated in Fig. 138, together with a

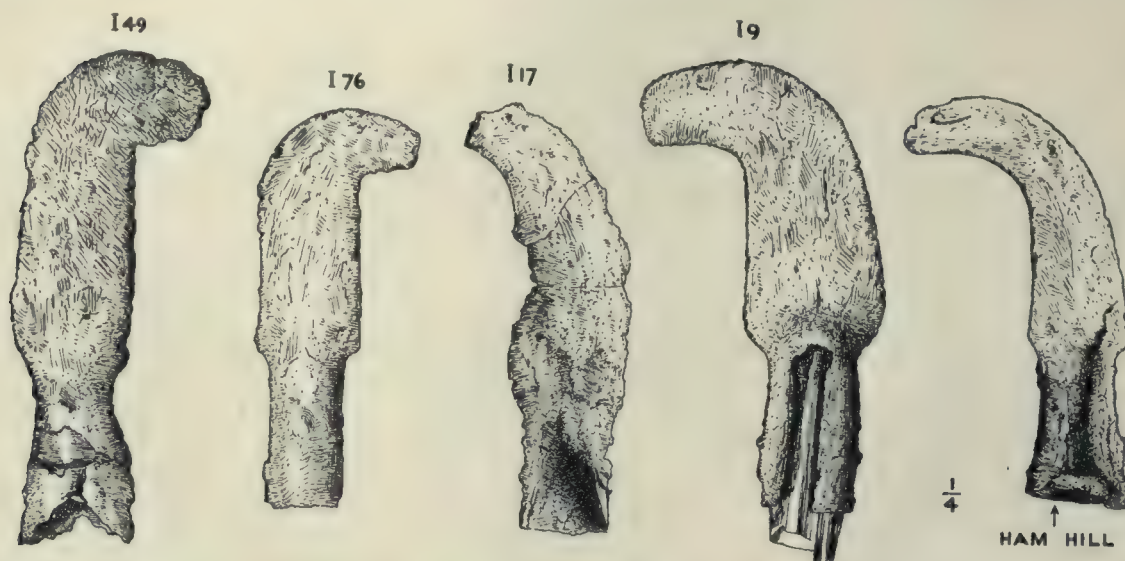


FIG. 138.—FOUR IRON BILL-HOOKS FOUND IN THE GLASTONBURY LAKE VILLAGE, AND ONE FOUND ON HAM HILL, SOMERSET.
From Drawings by Mr. Rupert C. Austin, A.R.I.B.A.

similar implement from Ham Hill, S. Somerset. From the table below it will be seen that they are not infrequently found with remains of the Prehistoric Iron Age. None of the specimens from the Village have the beak-like projection at the back of the blade which is characteristic of the "gisarme," or "glaive-gisarme," of later times, but one of this type from Lough Ravel, Co. Antrim, is said to have

1. *Collect. Antiqua*, I, Plate xxx, fig. 9.
2. *Archæologia*, LXII, Plate lxxviii, fig. 16; Balch's "Wookey Hole" (1914), p. 85, fig. 8.
3. *Journ. Derbysh. Arch. and N.H. Soc.*, XXXI, III.
4. *Arch. Journ.*, XIII, 174. This knife is socketed.
5. *L.D. of E.*, 289, fig. 90.
6. Munro's "Scottish Lake Dwellings," 124.

been found in association with antiquities bearing ornament of Late-Celtic character.

The largest bill-hook from the Village is 11 ins. long,—the smallest $8\frac{1}{2}$ ins. ; they appear frequently to have been double-edged. The hooked point curves over at right angles to the line of the blade. The split and folded socket was formed by hammering over the metal below the base of the blade, sufficiently to form a cavity of oval section for the reception of the wooden shaft or handle, which was kept in position by an iron rivet or bolt penetrating the socket on the line of its greatest diameter, *i.e.* on the line of the blade of the implement, and not at right angles to the blade as in the case of the bill-hook found in Mount Caburn Camp.¹

The most interesting specimen from the Village is I 49, Plate LX and Fig. 138 (fully described on p. 383). It was found complete with its well finished handle of ash, terminating in the usual expansion ; this handle is $12\frac{1}{4}$ ins. long, the total length of the implement being $22\frac{5}{8}$ ins.

The bill-hooks were fairly evenly distributed in the eastern half of the Village, but no specimens were found on the west or north-west.

The following notes of similar discoveries are given in tabular form for the greater convenience of reference :—

NO. FOUND.	LOCALITY.	COUNTY AND MUSEUM.	REFERENCES.	REMARKS.
1	Hod Hill	Dorset (Durden Coll., Brit. Mus.)	—	11 ins. long with whole socket of circular sec- tion.
2	Bigbury Camp, Harbledown	Kent (Manchester Mus.)	<i>Arch. Journ.</i> , LIX, 214, Plate i.	10 and 11 ins. long re- spectively.
1	Caerwent	Monmouthshire (Newport Mus.)	Ward's "Roman Era in Britain," p. 201.	Split socket of circular section.
1	Hunsbury Camp	Northants. (Northampton Mus.)	(Not described in Sir H. Dryden's paper).	Part of a small bill- hook.
1	Ham or Hamdon Hill	Somerset. (Taunton Mus.)	<i>Proc. Som. Arch. Soc.</i> , XLVIII, ii, 44 ; Fig. 138 of this chapter.	Length $8\frac{1}{2}$ ins.
2	Wookey Hole	Somerset. (Wells Mus.)	<i>Archæologia</i> , LXII, 575 ; LXIV, 341 ; Balch's "Wookey Hole" (1914), Plate viii, 10, and xvii, 22.	One specimen is 10 ins. long.

1. *Archæologia*, XLVI, Plate xxiv, fig. 13.

No. FOUND.	LOCALITY.	COUNTY AND MUSEUM.	REFERENCES.	REMARKS.
I	Mount Caburn Camp	Sussex. (Farnham Mus., Dorset).	<i>Archæologia</i> , XLVI, Plate xxiv, fig. 13.	Well preserved, length 10½ ins.
I	Barbury Castle Camp	Wilts. (Marlborough College Mus.)	—	Small bill-hook, about 6 ins. in length.
I	Botley Copse, ¹ near Baydon	Wilts. (Devizes Mus.)	<i>Wilts Arch. Mag.</i> , X, 106; XXXVI, 479, Plate i, fig. 1; <i>Cat.</i> <i>Devizes Mus.</i> , pt. 2, Plate xxviii, fig. 1.	This example has a "beak" at the back, and is perhaps of com- paratively late date.
I	Rotherley, R.B. Village	Wilts. (Farnham Mus., Dorset).	<i>P.R. Excavations</i> , II, Plate civ, fig. 17.	Iron socket,—probably of a bill-hook.
2	Lough Ravel (or Reval) Crannog	Co. Antrim. (One in Farnham Mus. Dorset; other in Belfast Mus.)	<i>Archæologia</i> , XLVI, 438. (Some of the Lough Ravel "finds" are in the Pitt-Rivers Mus., Oxford).	The bill at Farnham has a beak-like projection at back; found with objects having Late- Celtic ornamentation.
2	Craigyarwarren Crannog	Co. Antrim. (Nat. Mus., Dublin).	<i>Proc. Ryl. Irish Acad.</i> , XXVI, Sect. C, Plate ix, fig. 2, and p. 115.	Length 8½ and 8¾ ins. respectively.
I	Lagore or Dun- shaughlin Crannog	Co. Meath. (Nat. Mus., Dublin).	<i>Archæologia</i> , XLVI, 438-9; Munro's <i>L.D.</i> <i>of E.</i> , 354.	Blade measures 8 ins.
I	Cloonfinlough Crannogs, Strokestown	Co. Roscommon.	<i>L.D. of E.</i> , 368, no. 19; Wood-Martin's "Lake Dwellings of Ireland," 235.	Some of the Cloonfin- lough relics are in the Brit. Mus., but not the bill-hook.

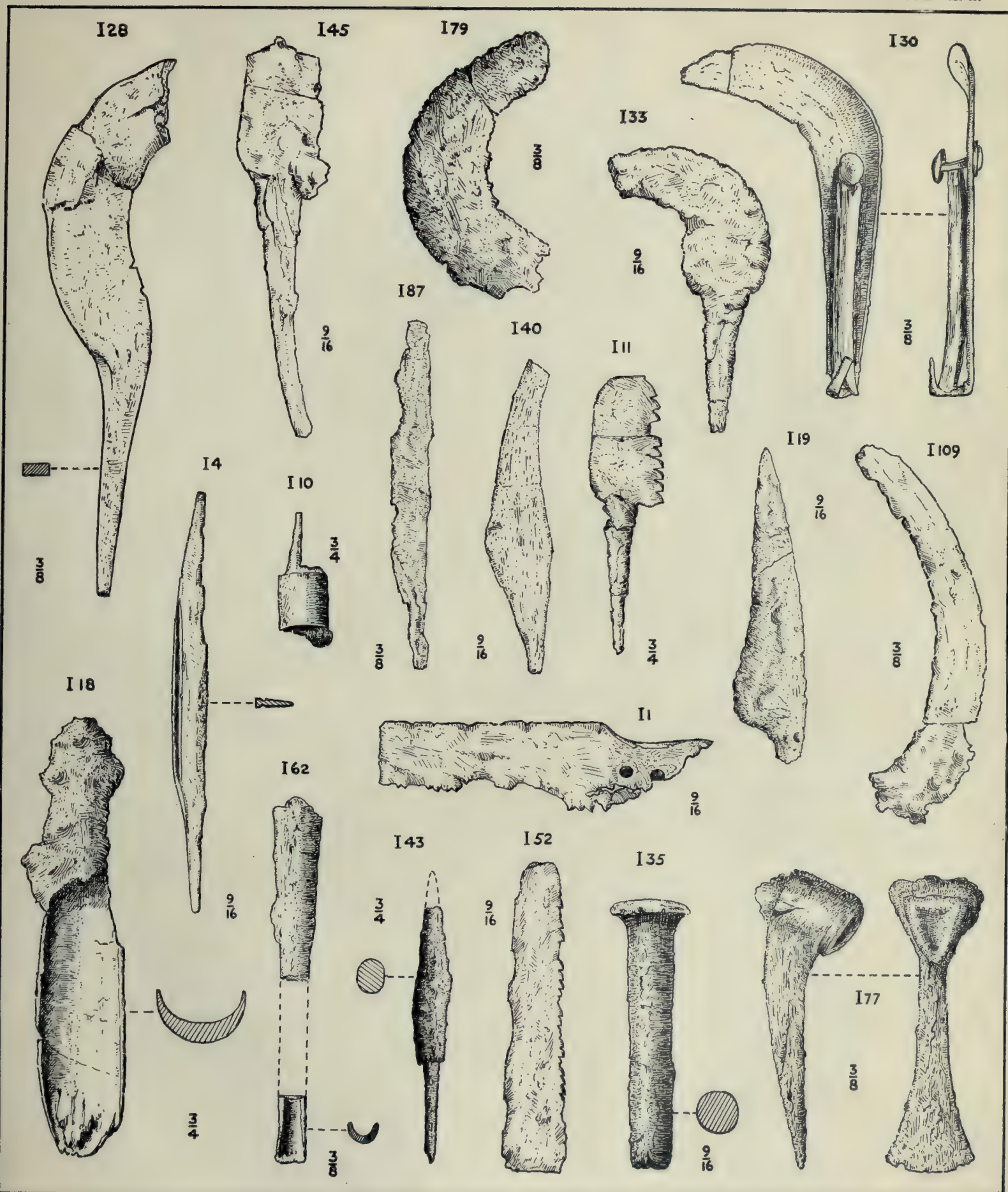
Ancient bill-hooks have been found on the Continent occasionally. One was found in a camp called Le Câtillon, near Caen, and other specimens, chiefly from the north of France, are referred to by Lane Fox in *Archæologia*.² M. Déchelette figures similar implements from Idria, near Băca and Saint-Audebert (Aisne).³ They have been found at the Early Iron Age station of Marin, Lake of Neuchâtel, where, however, they were made with a tang to fit into the handle.⁴

1. Another iron bill is exhibited in Devizes Mus., but it is probably of later date than the type under consideration (*Cat. Devizes Mus.*, pt. 2, p. 65).

2. Vol. XLVI, 438-9. A similar bill-hook is figured in *Mittheilungen der Prähistorischen Commission der Kais. Akademie der Wissenschaften*, I Band, no. 5, 1901, fig. 115.

3. *Manuel d'Archéologie Préhistorique Celtique et Gallo-Romaine* (1914), p. 1383, fig. 614, nos. 1, 2.

4. *L.D. of S.*, Plate cxxiii, fig. 19.



IRON IMPLEMENTS, INCLUDING SICKLES, KNIVES, SAWS AND GOUGES, GLASTONBURY LAKE VILLAGE.

From Drawings by Mr. Rupert C. Austin, A.R.I.B.A.

REAPING-HOOKS OR SICKLES.

The six implements described under this heading may have been used by the lake-villagers for several purposes, and I 28 (Plate LXI) is such a heavy blade that it may indeed have served as a coulter for a plough; in its full description (p. 384) implements of a somewhat similar type are referred to. The small hook, I 33 (Plate LXI) may have been used for pruning. One or two of these tools were perhaps found useful for hedging purposes, but undoubtedly the majority of them were the implements which in those days, as in some localities even now, were indispensable to the reaper. On turning to the Botanical Report (Chapter XXVI) it will be seen that wheat and barley were found plentifully in the Village.

These implements being described in detail on p. 384, there will be no necessity to give their dimensions and form here. Suffice it to say that I 60, represented in Fig. 139, although so fragmentary at its "business end," has an oak handle of considerable interest, showing the method of attachment by means of a ferrule, like the scimitar-shaped cutting implement (I 48) with its oak handle, illustrated in Plate LX.

It may be well to bring together here a list of some of the iron sickles of Late-Celtic and Roman date found in England.

Somerset.—A small sickle (total length of the metal, 2 $\frac{7}{8}$ ins.) was found on Site D, Ham Hill;¹ another at "Ham Turn" with Late-Celtic remains;² and

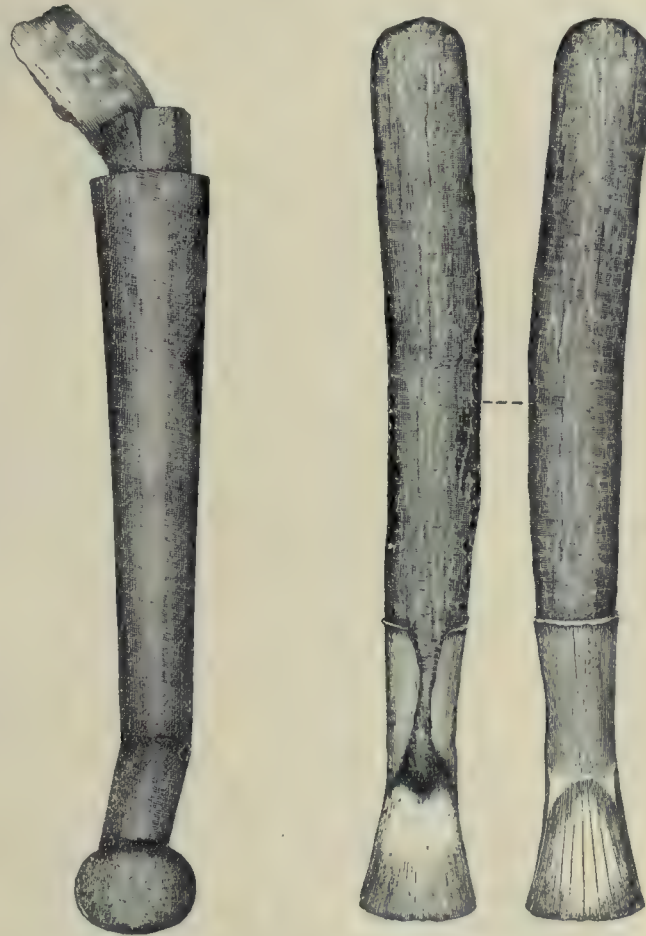


FIG. 139.—I 60, PART OF A REAPING-HOOK. I 54, SOCKETED GOUGE. BOTH HAVE OAK HANDLES. GLASTONBURY LAKE VILLAGE.

Scale $\frac{1}{2}$ linear.

From Drawings by Mr. Arthur Bulleid, F.S.A.

1. *Proc. Som. Arch. Soc.*, LVII, i, 114.

2. *Proc. Som. Arch. Soc.*, LI, i, 89.

one or two other sickles have been found on the Hill. A large reaping-hook was discovered on Ham Hill together with an adze on the breast of a human skeleton, the vertebræ of whose neck are stated to have been encircled with an iron ring¹ (all in Taunton Mus.). A small sickle and part of another were found in Wookey Hole (Wells Mus.),² and another at Charterhouse-on-Mendip.³

Dorset.—Three small sickles, or pruning-hooks, found near Blandford, are in the Durden Collection (Brit. Mus.). The same collection contains such implements from Hod Hill,⁴ and another from the camp on Hambledon Hill.⁵ A sickle was found in the R. B. Village of Woodcuts.⁶

Wilts.—The R. B. Village of Rotherley produced a specimen.⁷ A sickle with socket comes from Rushall Down,⁸ and another with tang was found on Wilsford Down (Devizes Mus.).⁹ Sickles, including some small pruning-hooks, were discovered at Barbury Castle Camp (Marlborough College Mus.). A curious "squared" pruning-hook was found on Roundway Down (Devizes Mus.).¹⁰

From Other Parts.—Reaping-hooks were found at Hunsbury Camp, two of which have been figured (Northampton Mus.).¹¹ A small specimen was discovered at Mount Caburn Camp (Sussex), and is exhibited in Farnham Mus., Dorset.¹² A small sickle was found at Cissbury in 1877 (Brighton Mus.).¹³ The collection of Late-Celtic iron objects from Bigbury Camp includes two sickles (Manchester Mus.).¹⁴ A pruning-hook, 3ins. long, was discovered at Dog Holes, Warton Crag, Lancs., with Late-Celtic remains;¹⁵ and about a dozen small specimens have been found among Roman remains at Caerwent (*Venta Silurum*).¹⁶ Mr. J. Curle, F.S.A.,

1. Figured in *Proc. Som. Arch. Soc.*, XXXII, i, Plate iii, figs. 1-3; see also XLVIII, ii, 43.

2. *Archæologia*, LXII, Plate lxxviii, fig. 13; Balch's "Wookey Hole," Plate xvii, 49, 50.

3. A.C. Pass Coll., Bristol Mus.

4. *Cat. Durden Coll.* (Payne), Plate iii, fig. 12; *Collect. Antiqua*, VI, Plate iii, fig. 7; Warne's "Ancient Dorset," Plate iii, fig. 7.

5. *Cat. Durden Coll.*, Plate iv, fig. 5.

6. *P.R. Excavations*, I, Plate xxix, fig. 12.

7. *Op. cit.*, II, Plate cvi, fig. 2.

8. *Wilts Arch. Mag.*, XXXVI, 483, Plate iv, fig. 10; and *Cat. Devizes Mus.*, pt. 2, Plate xxx, fig. 10.

9. *Op. cit.*, fig. 9 (of both books). Another reaping-hook appears to have been found at Wilsford (*Cat. Devizes Mus.*, pt. 2, p. 64).

10. *Cat. Devizes Mus.*, pt. 2, no. 386c.

11. *Reports, Assoc. Architect. Soc.*, XVIII, Plate vii, figs. 1, 2.

12. *Archæologia*, XLVI, Plate xxiv, fig. 10.

13. *Journ. Anthropol. Inst.*, VII, Plate ii; *Archæologia*, XLVI, 438.

14. *Arch. Journ.*, LIX, 214, Plate i.

15. *Trans. Lancs. and Chesh. Antiq. Soc.*, XXVIII, 73, and plate, fig. 5.

16. *Archæologia*, LXII, Plate lxi, fig. 4, nos. 5-7. (Newport Mus., S. Wales).

found reaping-hooks at Newstead,¹ and sickles from Silchester (Reading Mus.) and London have been figured.² A specimen found at Hammersmith and others from the Thames may be seen in the London Museum (Lancaster Ho.).

SAWS.

One of the most interesting objects discovered in the Lake-village is the iron saw, I 53 (Plate LX), complete, with its wooden handle, and in an excellent state of preservation. It was found in the peat outside the palisading, like the saws, I 1 and I 52 (Plate LXI). The small saw with tang is the only one found within the area of a dwelling-mound.

Saws must have been used to a large extent in the Village, from the finest saws required for cutting the teeth of the weaving-combs (p. 271), to those used for dividing up antlers and others still larger for wood-sawing.

The chief feature of these Glastonbury saws is that the apices of the teeth in all cases are set in an opposite direction to those of the ordinary modern British saw, proving that, as with oriental saws, the wood was sawn by drawing the blade towards the operator.³ Certain pruning-saws with teeth pointing towards the handle are manufactured at Sheffield at the present time for special purposes.

A few remarks upon the saw, I 53, Plate LX, will be made here, but fuller details will be found on p. 385. The saw-blade, which is $8\frac{1}{2}$ ins. long, has sixty-six teeth alternately turned from side to side. The implement is fixed into a handle of ash $9\frac{1}{2}$ ins. in length, and secured by two iron rivets; the hafting is $1\frac{3}{8}$ ins. deep. The handle terminates in a disc-shaped knob ornamented on the outer margin by two shallow grooves. The shaft is gracefully curved, and equal in workmanship to the best tool-handles of the present day.

A well preserved flint saw, F 42, was found in the Village close to the palisading outside Mound XLIX, and is figured and described in the Chapter on Flint. Such saws are sometimes found with flint implements of Neolithic type.

Saws of bronze and copper have been found in Britain and on the Continent in association with Bronze Age antiquities; among others a fine specimen found in a cave near Pembroke (Cardiff Mus.).⁴ The lake villages of Switzerland have produced some examples, as for instance those from Moeringen (Lake of Bienne) and Estavayer (Lake of Neuchâtel).⁵ Iron saws were found at La Tène.⁶

1. "A Roman Frontier Post," Plate lxi, figs. 2, 5.

2. Ward's "Roman Era in Britain," 197, fig. 56, D, E, F.

3. A copper (?) saw from Niebla, Spain, gins. long, has the teeth arranged to cut as it is drawn towards the workman. (Evans's "Bronze Implements," 184).

4. Evans, in "Ancient Bronze Implements," gives several references, p. 184.

5. *L.D. of S.*, Plate lv, fig. 10; and Plate xcvi, fig. 3.

6. *L.D. of E.*, 289, fig. 90, nos. 24, 25, 29.

An interesting iron saw was discovered in Wookey Hole, having, like the Village specimens, the teeth sloping in the direction of the handle.¹ Part of an iron saw was found on Ham Hill, S. Somerset (Taunton Mus.). Another, with a rivet-hole at the base, was found in the camp on Hambledon Hill (Dorset);² this has the teeth set so that when used the wood was sawn by drawing the blade towards the operator; a fragment of another, also with rivet-hole, was found on Hod Hill, and has its irregular teeth set in an opposite direction.³ Part of a coarse saw was found in the R. B. Village of Rotherley.⁴ An iron saw, with tang, has been figured, which was found on Salisbury Plain (? Rushall Down).⁵ A fragmentary saw was found with many other iron objects in Casterley Camp, Wilts.⁶ Three saws of iron, one with part of the antler grip still attached, were discovered at Hunsbury Camp (Northampton Mus.).⁷ Mr. T. J. George states that the teeth slope towards the handle. Portions of an iron saw were found in the crannog of Lochlee, Tarbolton, Ayrshire.⁸ The chief portion has a rivet-hole at the handle-end, and the teeth slope back towards the handle. Four iron saws were also collected from the crannog of Lagore, Co. Meath;⁹ and Mr. G. Coffey states that the teeth appear to slope towards the handle. An interesting saw is the double-edged one complete with its antler handle found at Newstead.¹⁰ An iron saw was found at the Roman villa at High Ham, Somerset, 1861.¹¹

GOUGES.

The four gouges, I 18, I 54, I 62, and I 96, found in the Village, are figured in Plate LXI, and in Figs. 139 and 140. They are fully described on p. 386, where a few references to similar "finds" are given. The socketed gouge or spud, I 54, is in an excellent state of preservation, and was found complete with its oak handle.

1. *Archæologia*, LXII, Plate lxxviii, fig. 15; Balch's "Wookey Hole," Plate xvii, 33, and p. 91.

2. *Cat. Durden Coll.*, Plate iv, fig. 6; also *Journ. Brit. Arch. Assoc.*, XLVII, 62, fig. 2. In the Brit. Mus.

3. *Cat. Durden Coll.*, p. 29, no. 103.

4. In Farnham Mus., Dorset. P.R. *Excavations*, II, Plate civ, fig. 2.

5. *Wilts Arch. Mag.*, XXXVI, Plate iii, fig. 8 (p. 482); *Cat. Devizes Mus.*, pt. 2, Plate xxxii, fig. 8.

6. *Cat. Devizes Mus.*, pt. 2, Plate lxiv, fig. 9; *Wilts Arch. Mag.*, XXXVIII, Plate iii, fig. 9.

7. *Reports, Assoc. Architect. Soc.*, XVIII, Plate vi, figs. 16, 17; Munro's "Prehistoric Scotland," 273.

8. Munro's "Ancient Scottish Lake Dwellings," 87.

9. *L.D. of E.*, 356, fig. 106, nos. 7, 8.

10. "A Roman Frontier Post," Plate lxviii, fig. 6.

11. *Proc. Som. Arch. Soc.*, XI, i, 56; *V.C.H. Somerset*, I, 328.

The iron part is $4\frac{1}{4}$ ins. long, the length of the handle including the portion within the socket being $10\frac{3}{4}$ ins.

ADZES.

Seven adzes¹ were discovered in the Village, some being much corroded. They are fully described on pp. 386-7. I 50 and I 51 were found close together in the peat outside the palisading near Mound LXI (Plan, Plate XXXIII); and three, I 70, I 73, and I 77, were closely associated being within a few feet of each other in Mound IV (Plan, Plate VII).

One of the latter, I 77, is figured in Plate LXI; I 88 is represented in Plate XLIV, and I 93 is illustrated in Fig. 140.

The adze-heads average about $6\frac{1}{2}$ ins. in length, varying only from $6\frac{1}{4}$ ins. to $7\frac{1}{4}$ ins., while the width of the cutting-edges varies from $1\frac{1}{4}$ ins. to $2\frac{1}{8}$ ins. Most of the sockets are of oval form, but I 77 appears to have a triangular aperture for the reception of the wooden handle. In at least two cases there is a projection, known as the "head," at the back of the socket, which may have been used

for hammering purposes, being too blunt for cutting. The specimen found at Wookey Hole is of a similar type.²

In most cases the sockets still contain stumps of the shafts, the wood adhering by means of corrosion. I 50, however, was found with its ash handle complete, and the greater part of the handle (also of ash) of I 51 was recovered from the peat (figured in Plate LX).

Three iron adzes (or parts) have been found from time to time on Ham Hill

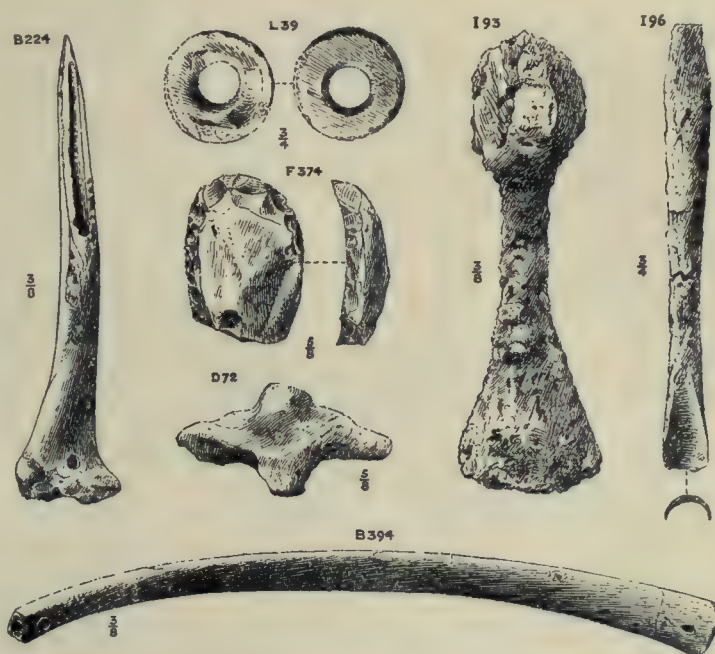


FIG. 140.—OBJECTS OF IRON, LEAD, BONE, FLINT AND BAKED CLAY, GLASTONBURY LAKE VILLAGE.

From Drawings by Mr. E. Sprankling.

1. Having noticed adze-marks on some of the timber we have regarded all these tools as belonging to the carpenter. They might also have been used as hoes, for agricultural purposes.

2. *Archæologia*, LXIV, Plate xxvi, fig. 1, a; Balch's "Wookey Hole," Plate xvii, 39.

(Taunton Mus.).¹ At least two of these tools were collected by Mr. Durden from Hod Hill (Brit. Mus.).² Four similar implements were found at Hunsbury Camp (Northampton Mus.).³ An adze of the same type was discovered in the crannog of Lisnacrogghera, Co. Antrim.⁴ A corroded adze, probably of later date, was found at Hengistbury Head.⁵

FILES.

No less than seven files and rasps, varying considerably in size, were found in the Village; they are fully described on pp. 387-8. For the most part they are in bad condition, but the "teeth" or

"cuts" are easily traceable even in the most corroded specimen. Five of the files are illustrated, I 3, I 47 and I 81, in Fig. 141, and I 98 and I 102, both from Mound LXXIV, in Fig. 137. No part of a perishable handle was found. Two of the specimens, I 3 and I 81, have twenty-four "cuts" to the inch; I 98 has twenty-eight teeth to the inch; and I 47 forty.

At least one file was found on Hod Hill.⁶ A well preserved tanged specimen is included among the fine collection of iron objects from Newstead.⁷

AWLS, BOLTS, NAILS AND RIVETS.

Only eight "finds" of this description were obtained from the Village. The awls are fragmentary and call for no particular mention here.

A long bolt, I 108, found in Mound LXXV, is illustrated on p. 365 (Fig. 137); the other is incomplete. I 22 consists of five imperfect rivets or nails, one of which is figured in Plate LXII; some of them appear to have been

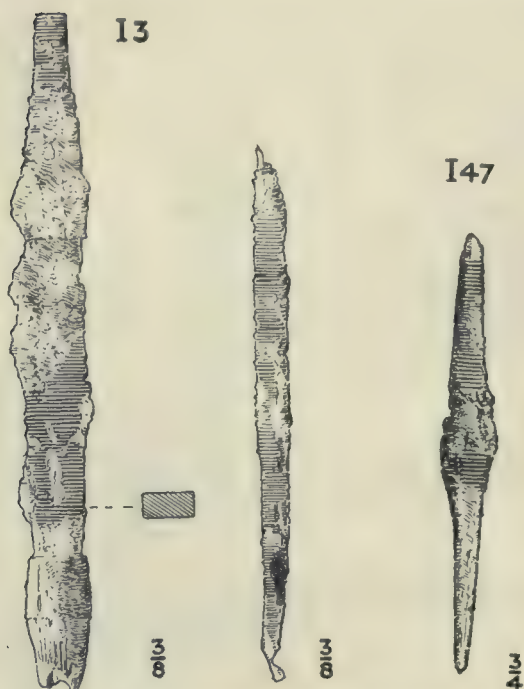


FIG. 141.—IRON FILES FOUND IN THE GLASTONBURY LAKE VILLAGE

The middle one should be numbered I 81.

From Drawings by Mr. R. C. Austin, A.R.I.B.A.

1. *Proc. Som. Arch. Soc.*, XLVIII, ii, 44.
2. *Cat. Durden Coll.*, Plate iii, fig. 11; *Journ. Brit. Arch. Assoc.*, XLVII, p. 62, fig. 7.
3. *Reports, Assoc. Architect. Soc.*, XVIII, Plate vii, fig. 6.
4. Wood-Martin's "Lake Dwellings of Ireland," 173.
5. *Report on the Excavations* (1915), p. 63.
6. *Cat. Durden Coll.*, p. 32.
7. "A Roman Frontier Post," Plate lix, fig. 5.

used as rivets; with them a short rivet of circular section was found, with hammered ends. I 8, portion of a nail or rivet with a boss on the head, and I 59, a large nail-shaped object, have been figured (Plate LXII).

KEY, OR LATCH-LIFTER.

The only specimen¹ found in the Village, I 56 (Plate LXII) is excellently preserved, having been found in the peat outside the palisading. It is of the typical Late-Celtic form, and about 18³/₁₆ ins. long, including the tapering tang which appears to have been intended to be driven into a wooden handle of which no trace was found.

By some these keys are supposed to have been used for opening doors fastened with a simple latch on the inside.² General Pitt-Rivers says, "Such latches were certainly employed amongst the earliest systems of door-fastenings, and the keys in question might have served the purpose of opening them, but they might also have been used to open locks with a single wooden tumbler; the simpler kinds resemble somewhat our modern pick-locks. . . . But for whatever purpose these crooked keys were used, whether as latch-keys, as keys for single-tumbler pins, or as hooks to pull back a plain iron or wooden bolt, the large size of some of them . . . corresponds with remarkable accuracy to the description of a Greek key given by Eustathius and quoted in Parkhurst's 'Hebrew Lexicon,' 5th edit., London, 1807. He says that they were 'in the shape of a sickle, and that not being easily carried in the hand on account of their inconvenient form they were carried on the shoulder, as we see our reapers carry on their shoulders at this day their sickles, joined and tied together.'"³

Mr. John Ward, F.S.A., offers another suggestion as to the probable method of using these keys, his remarks being accompanied by an illustration.⁴ Phelps appears to have regarded these objects as implements used in the smelting of lead.⁵

The writer, having witnessed the finding of keys of this type in the Pitt-Rivers excavations in N. Dorset and S. Wilts and having collected notes on similar discoveries, has put the following records into tabular form for the greater convenience of reference.⁶ This class of key occurs on Roman sites both in Britain and France, and is also found with Late-Celtic remains in both countries, for which reason it is sometimes called the "Celtic key."

1. "Wookey Hole" (1914), p. 85, mentions "specimens" from Glastonbury.

2. Liger's "La Ferronnerie," Tome I, p. 320.

3. "Primitive Locks and Keys," 1883, pp. 11-12.

4. "The Roman Era in Britain," p. 239, fig. 68, C.

5. Phelps' "History of Somersetshire" (1835), pp. 172-3.

6. Mr. H. E. Balch states in "Wookey Hole" (1914), p. 85, that "only a limited number have been found."

No. FOUND.	LOCALITY.	COUNTY AND MUSEUM.	REFERENCES.	REMARKS.
6	Hod Hill Camp	Dorset. (Durden Coll., Brit. Mus.)	<i>Cat. Durden Coll.</i> , Plate iv, figs. 3, 4; <i>Collect. Antiq.</i> , VI, Plate iii, fig. 10; Warne's "Ancient Dorset," Plate iii, fig. 10; <i>Journ. B.A.A.</i> , XLVII, 60, fig. 2.	The handles have ring- terminals in some cases. One has wards at the end instead of the hook.
I	Iwerne, site of Roman building	Dorset. (Farnham Mus.)	—	Excavated by Pitt- Rivers in 1898. Results unpublished.
2	Spettisbury	Dorset. (British Mus.)	<i>Proc. Soc. Antiq. Lond.</i> , 1 ser., IV, 190; "Prim. Locks and Keys," Pl. iv, fig. 39B; <i>E.I.A.</i> <i>Guide B.M.</i> , 125.	One of them is imper- fect.
2	Stoke Abbot	Dorset. (Mus. of Bridport Lit. and Sc. Inst.)	—	Ralls Collection.
I	Woodcuts, R.B. Village	Dorset. (Farnham Mus.)	P.R. <i>Excavations</i> , I, Plate xxv, fig. 5.	A sickle-shaped key.
I	Woodyates, R.B. Settlement	Do.	P.R. <i>Excavations</i> , III, Plate clxxxiv, fig. 17.	Typical example, with ring terminal.
I	Ely Race Course, near Cardiff	Glamorgan. (Welsh Mus., Cardiff).	<i>Trans., Cardiff Natur- alists' Soc.</i> , XXVI, 123.	Incomplete.
I or 2	Llantwit Major	Do.	<i>Trans., Cardiff Natur- alists' Soc.</i> , XX, 49.	One nearly complete ; another very fragmen- tary. (Found with Roman remains).
I	Bittern Manor (<i>Clausentum</i>)	Hants. (Tudor House Mus., Southampton).	—	Broken off at the "busi- ness-end."
4	Silchester (<i>Calleva Atrebatum</i>)	Hants. (Reading Mus.)	—	—
4	Hartlip (Dane Field), Roman Villa	Kent. (Kent Arch. Soc. Coll., Maidstone Mus.)	<i>Collect. Antiq.</i> , II, Plate vi, figs. 2, 3; "Prim. Locks and Keys," Plate iv, figs. 35B, 36B; <i>Arch. Can- tana</i> , XIX, <i>Cat. Coll.</i> <i>Kent Arch. Soc.</i> , p. 16, no. 215.	They are of a flattened sickle shape. The two not figured are smaller than the others.
2	London	(London Mus., Lancaster House).	—	Dr. F. Corner Coll.

No. FOUND.	LOCALITY.	COUNTY AND MUSEUM.	REFERENCES.	REMARKS.
4 or 5	Caerwent (<i>Venta Silurum</i>)	Monmouthshire. (Caerwent Mus.) (Newport Mus.)	"Isca Silurum," Plate xxxvi, fig. 1; "Prim. Locks and Keys," Plate iv, fig. 34B.	—
2	Hunsbury Camp	Northants. (Northampton Mus.)	(Not figured with the "finds" in <i>Assoc. Archit. Soc.</i> , XVIII).	One of twisted iron.
2	Charterhouse-on-Mendip	Somerset. (Bristol Mus. A. C. Pass Coll.)	—	Neither of these is complete.
1	Combe Down, Bath	Somerset. (Bath Mus.)	Scarth's "Aqua Solis" 118; <i>Wilts Arch. Mag.</i> , XXXVI, 135.	Typical example with ring terminal.
3	Ham or Hamdon Hill	Somerset. (Taunton Mus., Walter Coll.)	<i>Proc. Som. Arch. Soc.</i> , XLVIII, ii, 45.	None of them complete. Small curved object with ring-end, perhaps a key.
1	Ham Hill, Roman "Villa"	Somerset. (Taunton Mus., Adams & Beattie Coll.)	<i>Journ. Roman Studies</i> , III, 130.	Complete with loop and ring; length roins.
1	Pitney	Somerset.	Phelps' "History of Somersetshire," 1835, pp. 172-3, and fig. 2.	—
1	Wookey Hole	Somerset. (Wells Mus.)	<i>Archæologia</i> , LXII, Plate lxxviii, fig. 11; Balch's "Wookey Hole" (1914), Plate viii, 9.	Has ring in loop, but is broken at other end.
2	Mount Caburn Camp	Sussex. (Farnham Mus., Dorset).	<i>Archæologia</i> , XLVI, Plate xxiv, figs. 16, 17; "Prim. Locks and Keys," Plate iv, figs. 40B and 41B.	The Sussex specimens differ from all the others in not having a straight handle, this end consisting of a short but large ring or loop.
1	Cissbury	Sussex. (Brighton Mus.)	<i>Journ. Anthropol. Inst.</i> , VII, Plate xi, fig. 12; "Prim. Locks and Keys," Plate iv, fig. 42B.	
2	Casterley Camp	Wilts. (Devizes Mus.)	<i>Wilts Arch. Mag.</i> , XXXVIII, Plate ix, fig. 8.	Sickle-shaped keys, both damaged.

NO. FOUND.	LOCALITY.	COUNTY AND MUSEUM.	REFERENCES.	REMARKS.
I	Martin Down Camp, Pit near	Wilts. (Farnham Mus.)	P.R. <i>Excavations</i> , IV, Plate 315, fig. 10.	Has ring in loop at end of handle.
2	Oare (Withy Copse)	Wilts. (Devizes Mus.)	<i>Wilts Arch. Mag.</i> , XXXVI, Plate ii, A, B; <i>Cat. Devizes Mus.</i> , pt. 2, Plate xlvii, A, B.	These have a loop at end of handle.
I	Rotherley, R.B. Village	Wilts. (Farnham Mus.)	P.R. <i>Excavations</i> , II, Plate cv, fig. 5.	Has ring in loop at end of handle.
I	Rushall Down, Salisbury Plain	Wilts. (Devizes Mus.)	<i>Wilts Arch. Mag.</i> , XXXVI, 135; <i>Cat.</i> <i>Devizes Mus.</i> , pt. 2, p. 66.	Length 10ins.; has ring in loop.
I	Westbury	Wilts. (Devizes Mus.)	<i>Wilts Arch. Mag.</i> , XXXVI, 476; <i>Cat.</i> <i>Devizes Mus.</i> , pt. 2, p. 72, no. 631.	Sickle-shaped key found with Roman remains, 1877-1882.

Two Gaulish specimens were found at St. Pierre-en-Chastre, Oise (Musée de Saint-Germain).¹ M. Déchelette figures three specimens from Bibracte, and quotes other Continental specimens.² A sickle-shaped key, length 11½ ins., was discovered at Tiefenau, near Berne (Brit. Mus.). Two keys of somewhat similar character from Bornholm in the Baltic (and considered to be of the third or fourth century A.D.) have been illustrated.³ Others have been figured by Liger.⁴ A key resembling the Late-Celtic ones, from Benin City, West Africa, may be seen in the Horniman Museum, Forest Hill. A thin iron object with right angle bends in opposite directions found in Craigywarren Crannog, Co. Antrim, may possibly be a key, or latch-lifter.⁵

HORSE-BITS.

No complete horse-bit was found in the Village, but the portions which remain clearly indicate that the snaffle-bit was in general use. I 36, Plate LXII, consists of the two sides of a snaffle-bit, the central connection being deficient; I 12,

1. "Primitive Locks and Keys," Plate iv, figs. 37B, 38B.

2. *Manuel d'Archéologie Préhistorique Celtique et Gallo-Romaine* (1914), p. 1391, fig. 619, nos. 1, 2, 3, and Plate xiii, 27.

3. "Primitive Locks and Keys," Plate iii, figs. 32B, 33B; *Mémoires de la Société Royale des Antiquaires du Nord*, 1872-77, Plate viii, figs. 1, 2.

4. "La Ferronnerie," Tome I, 320.

5. *Proc. Ryl. Irish Acad.*, XXVI, Sect. C, Plate ix, fig. 5, and p. 115.

Plate LXII, two "bars" or "links" of different bits, found together; and I 78, Plate LXII, one bar of a bit. The latter specimen appears to have been "plated" with thin bronze (p. 390). The other example was much corroded and in fragments, but enough remains to show that the pair of bars forming the greater part of the bit was connected by a central link, while on the outer margins portions of large rings, to which the bridle was attached, adhere by corrosion. The three larger bars average $2\frac{3}{4}$ ins. in length, and their bulbous ends are perforated for connection with the next section. The illustrations show their form much better than any written account can describe them.

Space will not permit mention of the many bronze bridle-bits of the Late-Celtic period which have been discovered in Great Britain and Ireland, but the extremely interesting hoard of horse-trappings from the Polden Hills, Somerset, now in the national collection, should not be forgotten.¹ A finely preserved Late-Celtic horse-bit of bronze from this "find" is exhibited in Bristol Museum.² A complete iron bit of the snaffle type was found many years ago on Ham Hill.³ The bits from the same locality exhibited in Taunton Castle Museum are of a different character and of Roman date.⁴

Snaffle-bits of iron, similar to those found in the Lake-village, were discovered at Hunsbury Camp;⁵ and another was found in the R. B. Village of Woodcuts.⁶ The two snaffle-bits found with Late-Celtic remains in Bigbury Camp, are also comparable with those from Glastonbury, and one of them is plated with bronze.⁷

The fine examples of horse-bits from the Arras barrows, Yorks, are of iron with a covering of bronze. The illustrations of these in *Archæologia*⁸ well show the type of bit used by the inhabitants of the Lake-village.

Part of what appears to be a horse's bit was found with Late-Celtic remains at Dog Holes, Warton Crag, Lancs.⁹ Portion of a bit (?) of rude form was discovered in the rubbish-heap at Oare, Wilts;¹⁰ half another, at Baydon, Wilts.¹¹ Part of a bronze bridle-bit of a recognized British type was found in a hoard of objects at Santon Downham.¹²

1. Vol. I, p. 230. Romilly Allen in his "Celtic Art" gives a list of most of the best known Late-Celtic horse-trappings, pp. 94-96.

2. Figured in *Archæologia*, XIV, p. 92, Plate xix, fig. 1.

3. *Archæologia*, XXI, Plate v, p. 42.

4. *Proc. Som. Arch. Soc.*, XXXII, i, 82-83, and Plate iii, figs. 7, 8; XLVIII, ii, 46.

5. One is figured in *Reports, Assoc. Architect. Soc.*, XVIII, Plate vii, fig. 8.

6. *P.R. Excavations*, I, Plate xxv, fig. 3.

7. *Arch. Journ.*, LIX, 216, Plate iii.

8. Vol. LX, 280, 285; see also *E.I.A. Guide, B.M.*, 106-7.

9. *Trans. Lancs. and Chesh. Antiq. Soc.*, XXVIII, 73, and plate, fig. 7.

10. *Wilts Arch. Mag.*, XXXVI, Plate ii, D; *Cat. Devizes Mus.*, pt. 2, Plate xlvii, D.

11. *Cat. Devizes Mus.*, pt. 2, no. 458.

12. *Proc. Camb. Antiq. Soc.*, XIII, 152.

A fine specimen of a bronze bit (of the lake-village type) was found at Walthamstow, and is exhibited in the Corner Collection in the London Museum (Lancaster Ho.).

RINGS (LARGE AND SMALL).

The finger-rings of iron have already been described in Vol. I, pp. 216-7; and the miscellaneous rings, chiefly connected with harness no doubt, call for no special mention here. Some of them have been figured in Plate LXII (I 16, I 27, I 58, I 64, I 103). They are described on pp. 390-1.

MISCELLANEOUS.

Under this heading twenty-three "finds" of iron are included, but they are for the most part very fragmentary or much corroded. Some of the best specimens have been figured in Plates LXI and LXII (I 10, I 38, I 55, I 57, I 68, and I 69), and the details of their form are given on pp. 391-2. Five of the number were found in Mound V.

DETAILED DESCRIPTION OF OBJECTS OF IRON FOUND IN THE LAKE VILLAGE.

DAGGERS.

I 2. Dagger, with tang, in an excellent state of preservation and of rare form; total length 233mm. (about 9½ins.). The faces of the blade are very slightly convex, and the cutting-edges are curved a little outwards; length of blade 132mm., max. width 39mm., max. thickness 3·8mm. The tang, which was probably covered by a grip of perishable material, is of quadrangular section; the butt-end has been slightly hammered.

Found 4½ft. below the surface, 10ft. S.S.E. of the c.p. of Mound XLVI, 1893.

Figured in Plate LXII.

A similar dagger, having a blade 4½ins. long and 1¼ins. wide at base, was found in a crannog at Lochlee, Tarbolton, Ayrshire.¹ Another large dagger was found at Bigbury Camp, Kent, with other iron objects corresponding to those from the Village.²

I 32. Small portion of a dagger, consisting of the junction of the blade with the tang; max. width 33·5mm. Between the base of the blade and the tang is a sharply raised curved ridge, similar to that seen in the tanged dagger found on Ham Hill, S. Somerset (Taunton Mus.).³ The tang and blade of iron swords found in the Lisnacroghera Crannog, Co. Antrim, are divided by a similar curved ridge.⁴

Found in the peat, 10ft. E.N.E. of the c.p. of Mound XVII, 1894.

Figured in Plate LXII.

I 90. Object with long narrow perforation, perhaps the guard of a dagger, much corroded;

1. Munro's "Ancient Scottish Lake Dwellings," 126.

2. *Arch. Journ.*, LIX, 214, Plate i.

3. *Proc. Som. Arch. Soc.*, XXXII, i, Plate ii, fig. 9; also XLVIII, ii, 42.

4. *L.D. of E.*, 383, fig. 124; Déchelette, *Manuel d'Archéologie Préhistorique Celtique et Gallo-Romaine* (1914), p. 1122, fig. 464, no. 1.

length 60mm. The sides are slightly convex, and the ends expand into bulbous projections. A somewhat similar object was found in a rubbish-heap at Oare, Wilts.¹

Found in the peat under the clay floors of Mound LXX, 5½ft. N. of the c.p., 1905.

Illustrated in Vol. I, 246, Fig. 48.

SPEAR-HEADS AND JAVELIN-HEADS.

I 20. Socketed spear- or javelin-head of slender form, much corroded and in four fragments; approx. length when complete 140mm. (5½ins.). The sides of the socket are pierced by a rivet.

Found 3ft. E.S.E. of the c.p. of Mound LXII, 1892.

I 42. Socketed spear-head, with short and broad leaf-shaped blade; point missing; length 86mm. (3½ins.); max. width of blade 28.5mm. The socket is of the split variety, and still contains some of the wooden shaft.

Found on the second floor of Mound XVIII, 9ft. W.N.W. of the c.p., 1895.

Figured in Plates LX and LXII.

I 86. Much corroded implement, with a long socket of round section, and small, short, broad head; probably a javelin-head; length 110mm.; max. ext. width of socket 18mm.

Found in the peat, 11½ft. N.E. of the c.p. of Mound XXXVII, 1898.

FRAGMENT OF SWORD.

I 13. Portion of the handle of a sword, consisting of a thin flat piece of iron of quadrangular section; min. width 25.5mm., enlarging to a width of 35.3mm. at about the point of junction with the base of the blade. None of the material which formed the grip remains, except a much corroded mass on one surface. At the upper end a rivet-hole (diam. 3.8mm.) is clearly seen, whilst at the other end the middle rivet-hole of the handle appears to have a portion of a rivet in position.

Found in Mound LXII, 1892.

Figured in Plate LXII.

KNIVES.

I 4. Single-edged slender knife, with tang, in a good state of preservation; length, including tang, 159mm. (6¼ins.). The tang tapers gradually from the base of the blade, and is 47.5mm. long. The cutting-edge is almost straight, the back slightly curved. A tapering groove runs along the blade close to the back, on both surfaces, for a distance of about 60mm. Max. width of blade 12.5mm.; max. thickness of back 4.3mm. A similar form of knife has been found on Ham Hill, S. Somerset (Taunton Mus.).

Found in the peat E. of the Causeway, 96ft. S.S.W. of the c.p. of Mound XLVII, 1893.

Figured in Plate LXI.

I 19. Single-edged knife with small portion of the tang remaining; length in present condition 118mm. (4½ins.). The back is slightly curved, the cutting-edge of ogee outline; the blade is 25.7mm. wide at the base. A similar knife was found at La Justice de Hans (Marne), and has been figured.²

Found on the first floor of Mound XLII, 2½ft. to the S.S.E. of the c.p., 1893.

Figured in Plate LXI.

1. *Wilts Arch. Mag.*, XXXVI, Plate ii, E; and *Cat. Devizes Mus.*, pt. 2 (1911), Plate xlvii, E.

2. "Essai sur l'Époque Barbare dans la Marne," by Georges Goury, *Les Étapes de l'Humanité*, vol. I, fas. iii, p. 19, fig. 7.

I 40. Small curved knife, with short, stout, tapering tang ; point deficient ; present length 119mm. ($4\frac{1}{8}$ ins.) ; max. width at base of the blade 25mm.

Found on the second floor of Mound XVIII, $8\frac{1}{2}$ ft. N.N.W. of the c.p., 1895.

Figured in Plate LXI.

I 45. Tang and portion of the blade of a curved knife ; total length in a straight line 149mm. ($5\frac{7}{8}$ ins.), of which about 94mm. represents the tang. It appears to be double-edged ; max. width of blade 28mm. ; tang of quadrangular section.

Found on the first floor of Mound XLII, 9 $\frac{3}{4}$ ft. S. of the c.p., 1895.

Figured in Plate LXI.

I 48. Scimitar-shaped cutting implement, with complete wooden handle (X 99) ; the cutting-edge along the convex margin. The implement was fixed by driving the tang into the wooden handle and encircling it with a ferrule. Length of the convex margin of the iron 215mm. ($8\frac{1}{2}$ ins.), max. width 51mm., average thickness 4.5mm.

The handle is of oak ; the knob is faceted with knife-marks, but the shaft is fairly smooth. Its dimensions are as follows :—Max. length 251mm. ($9\frac{7}{8}$ ins.) ; max. diam. of knob 57mm. ; max. depth of knob 44mm. ; diams. of shaft, near knob 27mm., at other end 44 by 31.5mm. The shaft was distinctly grooved to a width of 19mm. where the ferrule was driven on.

Found in the peat near the palisading, 19ft. S.W. of the c.p. of Mound LXI, 1895.

Illustrated in Plate LX.

A similar implement with tang was found at Wilsford, Wilts.¹

I 65. Base of the blade of a knife, with long, flat, curved tang, of quadrangular section (max. width 7mm.) ; total length 81.5mm.

Found near the hearth on the first floor of Mound VI, 1ft. N.N.E. of the c.p., 1896.

I 85. Flat, corroded piece of iron, perhaps portion of the blade and point of a knife ; length 72mm. ; max. width 33mm.

Found on the second floor of Mound XXXIII, 9 $\frac{1}{2}$ ft. S.E. of the c.p., 1898.

I 87. Knife, straight-backed and single-edged ; point deficient,—end of tang also ; length in present condition 200mm. ($7\frac{7}{8}$ ins.) ; max. width of blade 22mm.

Found 5ft. S. of the c.p. of Mound XXX, 1898.

Figured in Plate LXI.

I 92. Four pieces of corroded iron, probably fragments of a knife.

Found under the clay floors of Mound LXX, 6 $\frac{1}{2}$ ft. S.E. of the c.p., 1905.

I 97. Portion of a thin knife much corroded, length 87mm.

Found in the peat near the edge of Mound LXXIV, 15ft. W.N.W. of the c.p., 1906.

I 99. Three portions of blades of knives.

Found close to I 97, 14 $\frac{1}{2}$ ft. W.N.W. of the c.p., Mound LXXIV, 1906.

I 100. Large curved tanged knife, perhaps used for cutting up meat. Total length in a straight line 279mm. (11ins.). Single-edged blade, the edge being convex and strongly curved ; the back concave and 5.5mm. thick towards the base ; max. width of blade 53mm. ; the tip is deficient. The tang, which has an iron collar at the top, is of quadrangular section and 90mm. long ; the base, however, is missing.

Found in the clay of the fifth floor of Mound LXXIV, 6 $\frac{1}{2}$ ft. N. of the c.p., 1906.

Illustrated in Fig. 137, p. 365.

I 105. Blade of a narrow curved knife, max. length 111mm. in a straight line ; average

1. *Wilts Arch. Mag.*, XXXVI, 483, Plate iv, fig. 9.

width of the blade 15mm. As in the case of the knife, I 100, the cutting-edge takes a convex curve, the concave back being 2.5mm. in thickness.

Found on the timber substructure of Mound LXXIV, 8ft. E.S.E. of the c.p., 1906.

Illustrated in Fig. 137, p. 365.

BILL-HOOKS.

I 9. Bill-hook of a design typical of the Late-Celtic period ; max. length, excluding portion of the wooden handle projecting beyond the socket, 249mm. ($9\frac{13}{16}$ ins.). The split socket, about 92mm. long, is in this case, as in the others, of oval section, with external dimensions at the mouth of about 47 by 40mm. It is double-edged. The hook, or point, curves over at right angles to the lower part of the blade ; width of blade at base 70.5mm., at curve 51mm., at end 35mm. The wooden handle appears to have been kept in position by an iron rivet near the base of the socket and on the line of its greatest thickness. The vertical opening on one side of the socket has a min. width of 12mm., the top having a rounded termination, as in the other specimens.

Found among the palisading, 22½ft. from the E.S.E. margin of Mound XXII, 1893.

Illustrated in Fig. 138, p. 366.

I 17. Bill-hook, single-edged, much corroded and damaged ; present length 220mm. ($8\frac{5}{8}$ ins.) ; max. ext. width of socket 47.5mm. The vertical opening on one side of the socket is much more pronounced in this than in the other examples from the Village.

Found on the first floor of Mound XLII, 5ft. S.E. of the c.p., 1894.

Illustrated in Fig. 138, p. 366.

I 41. Curved portion and end of the blade of a bill-hook, probably double-edged ; width at curve 54mm., at point 35mm.

Found 6½ft. N.N.W. of the c.p. of Mound XVIII, 1895.

I 44. Bill-hook in a much corroded condition ; length in present state 280mm. (11ins.). This is the largest bill-hook found in the Village. Width of blade at base 66mm., at curve 58mm., at end 31.5mm.

Found on the first floor of Mound XLII, 7ft. S. of the c.p., 1895.

I 49. Bill-hook, much corroded, of the same character as I 9 ; probably double-edged ; length, including socket, 264mm. ($10\frac{3}{8}$ ins.). The socket is of oval section with external dimensions at the mouth of about 51 by 39mm. The hook, or point, is curved at right angles to the line of the blade and socket ; width of blade, at base 68.5mm., at curve 50.5mm., at end 31mm. The wooden handle was kept in position by means of an iron rivet near the base of the socket and on the line of its greatest diameter.

The surface of the ash handle is smooth and well finished, without facets, and ending in a flattened knob-shaped expansion. The transverse section throughout is oval. Max. length, omitting portion within the socket, 311mm. ($12\frac{1}{4}$ ins.) ; transverse diameters, at middle of handle 33 by 25mm., and at the extremity 52 by 33mm.

Found in the peat among the palisading, 22½ft. S.W. of the c.p. of Mound LXI, 1895.

Illustrated in Fig. 138, p. 366 ; and complete with handle in Plate LX.

I 63. Portion of the blade of a double-edged bill-hook in three pieces, and socketed tang pierced by one rivet ; in a bad state of preservation.

Found on the eighth floor of Mound IX, 4ft. N. of the c.p., 1896.

I 75. Curved portion and end of the blade of a double-edged bill-hook ; section, slightly bi-convex ; width of blade, at the curve 47mm., at end 28mm.

Found on the first floor of Mound IV, 7½ft. W. of the c.p., 1896.

I 76. Bill-hook of similar type to I 9, but smaller and more corroded ; total length 216mm. ($8\frac{1}{2}$ ins.) ; the hooked part curves over at right angles to the blade. The split socket is about 95mm. long and still contains part of the wooden shaft. The double-edged blade has a width of 54mm. at the base, at curve 39mm., at end 25mm.

Found on the seventh floor of Mound V, $3\frac{1}{2}$ ft. W.N.W. of the c.p., 1896.

Illustrated in Fig. 138, p. 366.

REAPING-HOOKS OR SICKLES.

I 28. Massive hook, perhaps the coulter of a plough, point deficient ; length including tang 301mm. ($11\frac{7}{8}$ ins.). The tang is flat and of quadrangular section ; width at top 22mm., tapering to 7mm. at end ; average thickness 4.5mm. The upper portion of the blade had been broken and roughly welded. Max. width of blade 48.5mm. ; the back, which has been slightly hammered, has a max. thickness of 5.5mm.

Found in the peat outside the palisading, $26\frac{1}{2}$ ft. E. of the c.p. of Mound XLVIII, 1894.

Figured in Plate LXI.

Hooks, or coulters, somewhat similar, were found in Bigbury Camp, Kent,¹ and in the Liscroghera Crannog, Skerry, Co. Antrim.² Another large sickle, or coulter, was found on Ham Hill, S. Somerset (Taunton Mus.).

I 30. Well preserved sickle of unusual form, with tapering tang continued from the blade without shoulder. The length of the *blade* is only about 110mm. ($4\frac{3}{8}$ ins.) ; length from the point to end of the tang 200mm. ($7\frac{7}{8}$ ins.) ; width of the base of the blade 38mm. ; max. thickness of back of the blade 4mm. The tang was provided with a wooden grip, on one side only, which was secured at the top by a large iron rivet which projects 20mm. from the inner surface of the tang. At the bottom the wooden handle (now considerably shrunk) was kept in position by the end of the tang being turned back square for a length of 21mm. At the bottom the iron tang is about 15mm. wide.

Found in the peat outside the palisading, $16\frac{1}{2}$ ft. N.E. of the c.p. of Mound XLVIII, 1894.

Figured in Plate LXI.

I 33. Small reaping-hook, or sickle, point deficient ; with deeply curved blade and a rather short tapering tang, length 52mm. ; length of sickle and tang 108mm. ($4\frac{1}{4}$ ins.) ; width of blade at base 34mm.

Found $8\frac{1}{2}$ ft. E.N.E. of the c.p. of Mound XLI, 1894.

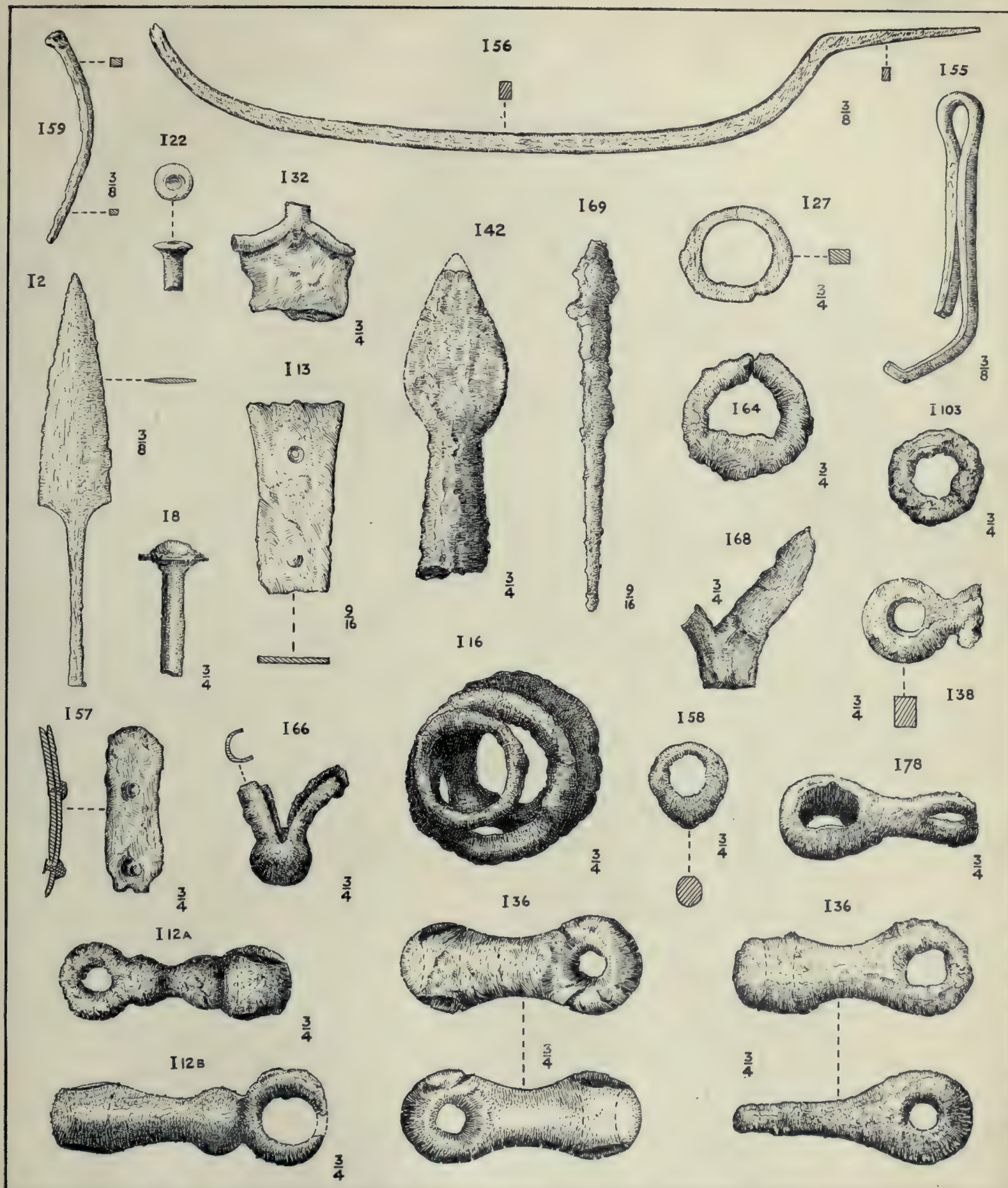
Figured in Plate LXI.

I 60. Fragment of an implement, probably part of a reaping-hook, with wooden handle (X 100). The remaining portion of iron is 47.5mm. in length, exclusive of the tang which was fitted into the wooden handle, the end of the latter being surrounded by a ferrule. The tang has been bent back and split the wood. The max. width of the blade is 30mm. ; the thin edge measures 1.5mm., the thick edge 12.5mm. The discrepancy in the width of the two margins is partly due to the fact that the iron was split along the back from imperfect welding.

The handle is of oak ; the knob is faceted with knife-marks, but the shaft is fairly smooth. The shaft is bent and partially broken through in two places, *i.e.* immediately below the knob and again at a distance of 38mm. from it. These fractures were probably produced by pressure when embedded in the peat, and the displacement of the tang may have been produced by the same force. The dimensions of the handle are as follows :—Max. length 289mm. ($11\frac{3}{8}$ ins.) ;

1. *Arch. Journ.*, LIX, 214, Plate ii.

2. Wood-Martin's "Lake Dwellings of Ireland," 176.



IRON OBJECTS, INCLUDING WEAPONS AND SNAFFLE-BITS, GLASTONBURY LAKE VILLAGE.

From Drawings by Mr. Rupert C. Austin, A.R.I.B.A.

max. width of knob 43mm., max. depth 30mm. ; diam. of shaft below knob 24mm., at larger end 41mm. ; diam. of wood cut for ferrule 28.5mm. ; depth of ferrule 22mm.

Found in the peat outside the palisading, 30ft. N.W. of the c.p. of Mound V, 1896.

Illustrated in Fig. 139, p. 369.

I 79. Part of a large sickle or reaping-hook, much corroded ; max. width of blade about 48mm.

Found 11ft. S.W. of the c.p. of Mound V, 1896.

Figured in Plate LXI.

I 109. Sickle or reaping-hook, tang deficient ; length in straight line 213mm. (8½ins.) ; much corroded. The width of the blade varies from about 21mm. to 31mm.

Figured in Plate LXI.

SAWS.

I 1. Portion of a saw with part of the flat tang perforated with two rivet-holes (diam. 4mm.), by means of which the wooden handle was fixed, as in I 53, Plate LX. Total length 121mm. (4¾ins.) ; max. thickness of blade 1.2mm.

Found in the peat outside the palisading, 31ft. E.N.E. of the c.p. of Mound XXII, 1893.

Figured in Plate LXI.

I 11. Small saw, with tang tapering to a point for insertion in a perishable handle. The tang is fractured, but measures about 43mm. long. The short blade varies in width from 17mm. to 20.3mm. ; average thickness 1.4mm. There were ten teeth, of which nine remain, measuring about 2.5mm. wide at base ; they slope in the same direction as I 1 and I 53.

Found 5¼ft. W.S.W. of the c.p. of Mound LXIV, 1892.

Figured in Plate LXI.

I 52. Upper end of a flat saw, not exceeding 1.3mm. in thickness in any part ; length 115mm. (4½ins.) ; max. width 24mm. The teeth, 3mm. wide at the base, slope in an opposite direction to those of a modern British saw.

Found in the peat outside the palisading, 18ft. N. of the c.p. of Mound LXI, 1895.

Figured in Plate LXI.

I 53. Saw with wooden handle (X 98) complete, in an excellent state of preservation. This was in some respects the most interesting object of iron found during the exploration of the Village. The saw-blade is hafted into the wood to a depth of 41mm., and fixed into position by two iron rivets placed at 14mm. and 28mm. respectively from the end of the handle.

The max. length of the blade is 205mm. (8⅛ins.). The serrated edge is slightly concave, and cut with sixty-six teeth alternately turned from side to side and set with the apices pointing towards the handle, so that when used the wood was sawn by drawing the blade towards the operator.

The dimensions of the blade are :—Max. width 28mm. ; max. thickness 3mm. ; thickness at margins 1.5mm. The teeth average 3mm. in width at the base and 2.2mm. in length. The hafting is about 3.8mm. in thickness ; diam. of rivets 2.2mm.

The ash handle is 241mm. (9½ins.) in length, terminating in a flattened disc-shaped knob, ornamented on the outer margin by two shallow grooves for two-thirds of its circumference, in the same manner as the wooden handle, X 4 (Vol. I, 313, Fig. 66). The gracefully curved shaft is quite smooth and well finished. In cross-section it is nearly circular, but at the level of the hafting the section is a flattened oval.

The following are the dimensions of the handle :—Max. diam. of knob 52mm., max. thickness 23.5mm., diam. of shaft, near knob 22mm., at hafting 25 by 33mm.

Found in the peat outside the palisading, 15¼ft. N. of the c.p. of Mound LIX, 1895.

Figured in Plate LX.

GOUGES.

I 18. Gouge, considerably corroded, in the form of a long narrow spoon; length, including remaining portion of the shank, 121mm. (about 4 $\frac{1}{4}$ ins.). Max. width of gouge 23.5mm., max. depth of gouge 8mm. Oak adheres to the implement on both surfaces.

Found, broken off in a piece of oak, at the N. end of the Causeway, 6 $\frac{1}{2}$ ft. N.E. of the c.p., Mound XLVII, 1893.

Figured in Plate LXI.

A large iron gouge with flat head was found in the R. B. V. Woodcuts, Dorset,¹ and socketed gouges were discovered at Silchester and Newstead.² Bronze and iron gouges have been found on Hod Hill (British Mus.).³

I 54. Socketed gouge or spud, in an excellent state of preservation; length 111mm. (4 $\frac{1}{4}$ ins.), with crescentic cutting-edge 40mm. wide, the curve deviating from the straight line to the extent of 3.3mm., and forming a segment of a circle measuring 130mm. (5 $\frac{1}{8}$ ins.) in diam. The tapering socket for the insertion of the wooden handle is split, its mouth measuring 29.5mm. by 27mm. externally; width of gouge at junction of blade with socket 25mm.

This implement was found complete with its plain oak handle, roughly shaped and pointed, max. length, including the part within the socket, 273mm. (10 $\frac{3}{8}$ ins.); circular cross-section, with max. diam. of 35mm.; surface covered with numerous slight facets, the result of knife-cuts.

Found in the peat, 8ft. E. of the c.p. of Mound LX, 1895.

Illustrated in Fig. 139, p. 369.

I 62. Gouge, with long socketed handle of circular section; broken in several pieces; length roughly 8ins. The width of the cutting-edge is 16.5mm., the depth of the curve being about 7mm.

Found on the seventh floor of Mound IX, 8 $\frac{1}{2}$ ft. N.W. of the c.p., 1896.

Figured in Plate LXI.

I 96. Small gouge, fractured through the shaft, and broken off at the head of the tang which is of quadrangular section. The shaft is of circular section, approx. diam. 7mm. The gouge has a deep curve and is 10mm. wide at the cutting-edge.

Found near the E. margin of the hearths on the third floor of Mound LXXVI, 8ft. N.E. of the c.p., 1906.

Illustrated in Fig. 140, p. 373.

A similar semicircular gouge or chisel was found in Bigbury Camp, Kent.⁴

ADZES.

I 50. Adze, much corroded, length 185mm. (7 $\frac{1}{4}$ ins.). This implement apparently never had a very wide cutting-edge, the present width, including corrosion, being 47mm. Its oval socket still contains a portion of the ash handle, 29 by 27mm. in section, and the remarks on the handle of I 51 also apply to this specimen. The broad, flat projection, or "head," at the back of the socket may have been used as a hammer.

Found in the peat among the palisading, 18ft. S.S.W. of the c.p. of Mound LXI, 1895.

Figured in Plate LX.

1. P.R. *Excavations*, I, Plate xxvii, fig. 6.

2. Ward's "Roman Era in Britain," 199; and Curle's "Roman Frontier Post" (1911), Plate lix, fig. 13.

3. *Cat. Durdun Coll.* (Payne), pp. 27, 29, 44.

4. *Arch. Journ.*, LIX, 215, Plate ii.

I 51. Adze, much corroded, length 163mm. ($6\frac{7}{16}$ ins.). The crescentic cutting-edge has been broken, but the original width was approximately 55mm. The blade is of quadrangular section, and at the point where it joins the socket it measures 13.5 by 25mm. Internally the socket is 31.5 by 26.5mm. At the back is the projection known as the "head," which may have been used for hammering purposes, being too blunt for cutting. Part of the ash handle was found with the adze, but the original length could not be ascertained. The surface of the wood is smooth and well finished; of circular section and about 1in. in diam.

Found near I 50, 20ft. s.w. of the c.p. of Mound LXI, 1895.

Figured in Plate LX.

I 70. The socket end of an adze, much corroded; length 90mm.; socket of oval section. There appears to have been no projection at the back of the socket.

Found on the second floor of Mound IV, $8\frac{1}{2}$ ft. w.n.w. of the c.p., 1896.

I 73. Portion of the blade of an adze, with slightly curved cutting-edge, 50mm. in width.

Found, near I 70, $7\frac{1}{4}$ ft. w. of the c.p. of Mound IV, 1896.

I 77. Adze, much corroded, length 164mm. ($6\frac{1}{2}$ ins.). The cutting-edge is straighter than in the other examples, and has a width of 49.5mm. In this example the back of the socket appears to be flat, without any projection as in I 50 and I 51. The socket is much corroded, but seems to have been of triangular form, the most acute angle being in the direction of the blade.

Found $7\frac{1}{4}$ ft. w.s.w. of the c.p. of Mound IV, 1896.

Figured in Plate LXI.

I 88. Adze in two pieces, much corroded; length 158mm. ($6\frac{1}{4}$ ins.); the socket is filled with the end of the wooden shaft.

Found near the s. margin of the third floor of Mound LXXIX, 1904.

Figured in Vol. I, Plate XLIV.

This specimen is now in the British Museum.

I 93. Adze in one piece, but very much corroded, the socket still containing a portion of the wooden handle; length about $6\frac{1}{2}$ ins.

Found on the surface of the timberwork substructure under Mound LXXI, $5\frac{1}{2}$ ft. w.s.w. of the c.p., 1905.

Illustrated in Fig. 140, p. 373.

FILES.

I 3. Heavy file, much corroded, length 242mm. ($9\frac{1}{2}$ ins.). An iron ferrule, length 23.5mm., covers the upper part of the broken tang, and divides the file from the wooden handle which is still traceable. The file is of quadrangular section, max. width 19mm., thickness 8mm.; at the top it tapers to a width of 10mm. The file-markings are at right angles to the length of the tool, and extend from the ferrule to the point. There are twenty-four grooves and the same number of ridges to the inch, in which respect it matches I 81.

Found $10\frac{1}{4}$ ft. s.s.e. of the c.p. of Mound LXII, 1893.

Illustrated in Fig. 141, p. 374.

I 47. Small tanged file, length 72mm. ($2\frac{7}{8}$ ins.), including the tang 32.5mm.; the tang of quadrangular section, the file of plano-convex section; max. width 6.5mm. Both the file and shank taper to a point. There are forty transverse grooves and forty ridges to the inch.

Found on the first floor of Mound XLII, 13ft. s. of the c.p., 1895.

Illustrated in Fig. 141, p. 374.

I 81. File in a much corroded condition, length 192mm. ($7\frac{1}{2}$ ins.); max. width 12mm.,

tapering in one direction; max. thickness 6mm.; plano-convex in cross-section, the teeth being on the flat side. These file-markings are transverse, *i.e.* at right angles to the length of the tool. There are twenty-four grooves and twenty-four ridges to the inch.

Found among the timberwork under Mound V, 8½ft. w. of the c.p., 1897.

Illustrated in Fig. 141, p. 374.

I 84. File of quadrangular section (about 10.5mm. square); in three pieces. Although much corroded it is possible to trace the transverse ridges of the file on three sides.

Found 5¼ft. n.w. of the c.p. of Mound XV, 1898.

I 98. Small file, pointed at both ends, length 82mm.; max. width 7.5mm. The file-markings are at right angles to the length of the tool, and there are about twenty-eight grooves and twenty-eight ridges to the inch.

Found in the peat near the edge of Mound LXXIV, 16ft. w.n.w. of the c.p., 1906.

Illustrated in Fig. 137, p. 365.

I 102. File of quadrangular section, pointed at both ends; much corroded; length 155mm. (6½ins.). The transverse ribbings of a fairly coarse file are seen on one face, and others are barely traceable on the three other faces also. Max. width in the middle 10mm.

Found in the section dug in 1902 at the level of the third floor of Mound LXXIV, 9½ft. s. of the c.p., 1906.

Illustrated in Fig. 137, p. 365.

I 107. Much corroded pointed end of a large object, perhaps part of a file; length 92mm.; max. width about 28mm.

Found on the second floor of Mound LXXV, 2ft. s. of the c.p., 1907.

AWLS.

I 43. Greater portion of an awl, present length 71mm. (2¾ins.); circular section, 5mm. in diam. at the broken point. The tang is of smaller size and of quadrangular section, length 29mm.

Found 9½ft. w. of the c.p. of Mound XVIII, 1895.

Figured in Plate LXI.

I 74. Two portions probably of a slender awl, much corroded; length of the two pieces together (which do not fit) 71mm. (2¾ins.); average width 4.5mm.

Found 4½ft. n.w. of the c.p. of Mound V, 1896.

BOLTS.

I 35. Large bolt, incomplete, with flat circular head 28.5mm. in diam.; length 100mm. (4ins.); circular section, diam. about 15mm.

Found 6¾ft. e.s.e. of the c.p. of Mound XLI, 1894.

Figured in Plate LXI.

I 108. Long bolt, found in a much corroded condition in five pieces, but subsequently cleaned; length 258mm. (about 10½ins.). The head is of oblong form, measuring 24mm. by 16mm.; height of head about 9mm. At a short distance from the head the bolt is of circular section, with a diam. of 12mm., tapering to about 10mm. at the smaller end.

Found below the clay in black earth, 9ft. e.n.e. of the c.p. of Mound LXXV, 1907.

Illustrated in Fig. 137, p. 365.

NAILS AND RIVETS.

I 8. Portion of a nail or rivet, with flat head surmounted by a raised boss ; length 38mm. Found 6½ft. N.N.E. of the c.p. of Mound XXIII, 1893.
Figured in Plate LXII.

I 22. Five small nails, or rivets, of similar type, all having flat circular heads measuring from 7mm. to 8mm. in diam. The tops are ornamented with circular depressions, somewhat similar to the bronze nail, E 196 (Vol. I, Plate XLIV). I 22 also includes a small rivet, length 7.7mm., the ends hammered and measuring 4mm. and 5mm. in diam. respectively.

Found 2½ft. N.N.W. of the c.p. of Mound LXIV, 1892.

One of the specimens is figured in Plate LXII.

I 59. Large nail-shaped object, curved in its present condition ; length in a straight line 118mm. (4½ins.) ; of quadrangular section, tapering slightly in one direction ; average width and thickness 5.5mm. There is a slight enlargement at the larger end, and the object may have been used as a nail.

Found in the peat outside the palisading, 42ft. S.S.W. of the c.p. of Mound V, 1896.

Figured in Plate LXII.

I 83. Small rivet or bolt, with flat head about 15mm. in diam. ; diam. of bolt about 9mm. ; length 42mm.

Found 9½ft. W.S.W. of the c.p. of Mound XL, 1898.

KEY.

I 56. Key of typical Late-Celtic form, in an excellent state of preservation. It consists of a long curved piece of iron of oblong section, with a straight tapering tang which was doubtless driven into a wooden handle. The other end of the key finishes in a blunted point. Total length in a straight line 466mm. (about 18½ins.), including the tang, which is 85mm. long ; max. width of material 10mm., max. thickness 6.5mm.

Found in the peat outside the palisading, 47½ft. S. of the c.p. of Mound V, 1896.

Figured in Plate LXII.

CHAPE.

I 66. Chape or bottom of the bordering of a sword or dagger sheath, of precisely similar form to those of bronze found in the Village (E 107 and E 247, Vol. I, Plate XLIV, and Fig. 43, p. 190). The bulbous projection at the base is 16mm. in diam. ; thin bordering (9mm. in width) springs from it on either side.

Found among the timberwork under the clay, 17ft. N.W. of the c.p. of Mound IV, 1896.

Figured in Plate LXII.

HORSE-BITS.

I 12. Two links of different snaffle-bits, but found together, and of more slender make than I 36. (a) Length 63.5mm. ; the larger and smaller rings of the "link" (at right angles to each other, as usual) are connected by a double-knobbed bar with a groove between. (b) Length 76mm. ; this half of a horse-bit consists of the outer bulbous enlargement (with perforation for insertion of the loose ring) connected with an inner knob by a short bar ; attached to the inner knob is the greater part of the middle link of the bit.

Found 5ft. N.W. of the c.p. of Mound LXIV, 1892.

Figured in Plate LXII.

I 36. The two sides of a horse's snaffle-bit, the central connection being deficient. The "links" measure 67mm. in length and 25mm. in diam. at both ends. The cylindrical holes at the bulbous ends are about 10mm. in diam. In the illustration different views of the two pieces are given.

Found near the margin of the second floor of Mound XXVII, 14½ft. N.E. of the c.p., 1895.
Figured in Plate LXII.

I 78. One side of a snaffle-bit, somewhat distorted; length 54.5mm. The outer rounded portion has a large cylindrical opening; the smaller ring-end is at right angles to the line of the other hole. This specimen appears to have been "plated" with thin bronze, and possibly I 36 was also.

Found 5½ft. S.S.E. of the c.p. of Mound V, 1896.
Figured in Plate LXII.

I 95. Horse's bridle-bit, much corroded and in three parts. In this example it is seen that the pair of "links" forming the greater part of the bit is connected in the middle by an iron ring, and that at the outer ends portions of large rings, to which the bridle was attached, adhere by corrosion.

Found 7ft. N.N.W. of the c.p. of Mound LXXIV, 1902.

RINGS (LARGE AND SMALL).

I 16. Three rings conjoined by corrosion,—a small ring on top of a pair of larger rings. The small ring is 33mm. in ext. diam., and of circular section (5.5mm.). The larger rings are 46mm. in ext. diam., and of oval section (about 8 by 6mm.). Probably harness-rings.

Found in the peat, 12½ft. S.S.E. of the c.p. of Mound LX, 1892.
Figured in Plate LXII.

I 23. Ring about 25.5mm. (1in.) ext. diam.; in two pieces; iron of circular section, diam. 5mm.

Found 9ft. S.S.W. of the c.p. of Mound LXII, 1892.

I 27. Ring of quadrangular section, perhaps originally of circular outline, but now measuring 26.5 by 30mm. externally.

Found on the surface of the S. part of Mound VIII, 1894.
Figured in Plate LXII.

I 31. Portion of a large ring (? armlet), in three pieces, ext. diam. roughly 84mm. (3¼ins.); material circular, approximately 6mm. in diam.

Found near the palisading, 26½ft. E.N.E. of the c.p. of Mound XXIII, 1893.

I 39. Two small rings and two of larger size; the whole in fragments and much corroded. Found on the fourth floor of Mound XVIII, 8ft. N.N.E. of the c.p., 1895.

I 58. Ring, average ext. diam. 22mm., with an enlargement on one side from which the material tapers in both directions; in this respect it is similar to the bronze ring, E 195 (Vol. I, Plate XLIV).

Found in Mound V, 1896.
Figured in Plate LXII.

I 64. Corroded ring, probably intended to be circular originally, but now measuring 34 by 35mm. externally; iron of oval section 5.5 by 7.5mm.

Found 13½ft. E.S.E. of the c.p. of Mound IX, 1896.
Figured in Plate LXII.

I 72. Portion of a large ring of circular section; the material 9.2mm. in diam.

Found on the first floor of Mound IV, 3¼ft. W. of the c.p., 1896.

I 82. Portions of a circular ring which measured 44mm. in ext. diam. ; material of round section, diam. 5mm.

Found 8½ft. w.s.w. of the c.p. of Mound V, 1897.

I 103. Circular ring with flattened faces ; ext. diam. about 25mm.

Figured in Plate LXII.

I 104. Ring, much corroded, and in many fragments ; diam. of material 6mm.

FINGER-RINGS.

I 6, I 15, I 29, I 37, and I 67. These iron finger-rings were described under the heading of "bronze finger-rings" in Vol. I, pp. 216-217, and three of them were figured in Plate XLI.

MISCELLANEOUS.

I 5. Fragment of iron pyrites.

Found 12ft. N.N.W. of the c.p. of Mound XXV, 1893.

I 7. Mass of corroded iron, consisting of two curved strips of quadrangular section, joined together apparently by rust ; max. length 85mm. (3½ins.).

Found 17½ft. E. of the c.p. of Mound XXIII, 1893.

I 10. Ferrule with a piece of pointed iron passing through the cylindrical space, and projecting beyond it in one direction to the extent of 15mm. The ext. circumference of the ferrule is 44mm. Owing to corrosion it is difficult to say whether the point formed one piece with the ferrule, or whether it was originally loose and had become attached to the ferrule by corrosion. If the latter the object probably belongs to the handle of some cutting implement, the pointed piece being part of the tang. If the former the object is probably an ox-goad, the socket being attached to a wooden shaft. Ox-goads of the kind have been found amongst Romano-British remains in the R. B. Villages of Woodcuts and Rotherley.¹ Two were found at Iwerne (? Ibernio), between Shaftesbury and Blandford, in 1897.

Found 13½ft. E. of the c.p. of Mound LXII, 1892.

Figured in Plate LXI.

I 14. Fragment of thin iron, one end turned up to the extent of 7.4mm. and at right angles to the remainder ; length 21mm. ; max. width 12mm.

Found 15ft. N.N.E. of the c.p. of Mound LXIII, 1892.

I 21. Fragment of a chain in a corroded mass, composed of circular material about 7mm. in diam.

Found 4ft. N. of the c.p. of Mound LXIV, 1892.

I 24. Four pieces of wire, diam. about 1mm.

Found 6ft. S.E. of the c.p. of Mound LXIV, 1892.

I 25. Thin ferrule, now in four pieces ; ext. diam. about 24mm. ; length 20mm. ; thickness of the metal about 0.6mm.

Found 6½ft. to the S.E. of the c.p. of Mound LXIV, 1892.

I 26. Several fragments of thin band iron, probably used for ornamenting a wooden object ; average thickness 0.8mm.

Found 3½ft. E.S.E. of the c.p. of Mound LXIV, 1892.

I 34. Corroded piece of iron of quadrangular section ; length 61.5mm., width 23mm., thickness 8mm.

Found 6ft. S.E. of the c.p. of Mound XLI, 1894.

1. P.R. *Excavations*, I, Plate xxix, fig. 10 ; and II, Plate cv, figs. 10-12.

I 38. Ring end of an iron object ; the ring is flat on both faces and of quadrangular section ; ext. diam. 23mm. ; int. diam. 8mm.

Found 6ft. N.W. of the c.p. of Mound XXVII, 1895.

Figured in Plate LXII.

I 46. Long implement, too much corroded for identification.

Found on the first floor of Mound XLII, 11½ft. S.S.E. of the c.p., 1895.

I 55. Double band of iron of square section, connected at one end by an elongated loop of circular section, all forming one piece of metal ; length in a straight line 155mm. (6¼ins.). Such loops for attaching to woodwork were found at Newstead.¹

Found under Mound LIX, 4ft. W. of the c.p., 1895.

Figured in Plate LXII.

I 57. Two thin flat bands of iron, fastened together by means of two rivets, making a total thickness (minus the rivets) of 2.5mm. ; length of fragment 46.5mm., max. width 15.3mm.

Found in the peat outside the palisading, 45ft. S. of the c.p. of Mound V, 1896.

Figured in Plate LXII.

I 61. Piece of curved pointed iron of quadrangular section ; length 80mm. (3¼ins.) ; max. width 14mm.

Found in the peat outside the palisading, 24½ft. N.W. of the c.p. of Mound V, 1896.

I 68. Portion of a pointed loop ; max. length 72mm.

Found on the first floor of Mound V, 13ft. N.N.W. of the c.p., 1896.

Figured in Plate LXII.

I 69. Pointed implement, in two pieces ; length 140mm. (5½ins.) ; circular section, about 6.5mm. in diam. in the middle.

Found on the second floor of Mound IV, 6½ft. N.W. of the c.p., 1896.

Figured in Plate LXII.

I 71. Large lump of corroded iron.

Found 9½ft. N.W. of the c.p. of Mound V, 1896.

I 80. Band or strip of quadrangular section, much corroded ; length 136mm. (5⅜ins.) ; max. width 39mm. ; average thickness 5mm.

Found 20½ft. S.S.E. of the c.p. of Mound V, 1896.

I 89. Small fragment, much corroded.

Found under the clay of Mound LXX, 9½ft. N.N.W. of the c.p., 1905.

I 91. Pointed object, much corroded ; length 55.5mm.

Found under the clay of Mound LXX, 7ft. W.N.W. of the c.p., 1905.

I 94. Portion of a bar of quadrangular section ; length 137mm. (5⅜ins.) ; width 18mm., tapering to 14mm. ; thickness 10mm., tapering to 7mm. Its purpose is indeterminable owing to corrosion.

Found on the S. margin of Mound LXXI, 14ft. S.S.E. of the c.p., 1905.

I 101. Small pointed implement, in two pieces.

Found on the fourth floor of Mound LXXIV, 7ft. W. of the c.p., 1906.

I 106. Four pieces of nondescript iron, all of quadrangular section, one piece having a tang ; probably parts of the same implement, but they do not join.

Found on the edge of the third floor of Mound LXXV, 12ft. W. of the c.p., 1906.

1. Curle's " Roman Frontier Post " (1911), Plate lxvii, figs. 6, 10-13.

CHAPTER XII.

CURRENCY.

By H. ST. GEORGE GRAY.

(1). TIN COIN.

RATHER more than half a thin piece of tin-money (Z 1),¹ of the Late-Celtic period,² was found near the surface 16½ft. s.e. of the central picket of Mound XXXI, near the western border of the Lake-village in 1898 (Plate XXXIX). It is of a degenerate type,³ and of native manufacture (Fig. 143); the piece as it remains weighs only 9.5 grains.⁴ The obverse represents a very rude head in profile to left, possibly intended to be helmeted; the eye is represented by a dot-and-circle; the facial portion is broken off, but it was probably outlined in the form of two crescents, one above the other. On the reverse is the figure of a rude horse (?) to left.⁵ The coin is probably early first century A.D., or perhaps a little later; this currency may have been intended for small change.

Very few discoveries of tin coins have been made in England, and most of them have been found in the s.e. and neighbouring counties.⁶ Previous to the discovery of the tin coin in the Lake-village no example of the kind appears to have been found west of Dorset. It is a notable fact that these coins are so rarely found near the tin-producing parts of Britain, but large "finds" of tin coins would hardly be expected in the localities where the metal was used commercially.

1. An alloy in which tin preponderates. Some of these coins are not pure tin, but have a considerable admixture of copper, so that they might almost rank as bronze.

2. Introductory Chapter, p. 30.

3. The type was derived from the extremely rude Gaulish coins in brass.

4. The weight of these coins differs considerably, but the average seems to have been about 22 grains. The difference in their weight appears to be due chiefly to the portion of the runlet left attached to them. They were cast in a string and the runlets cut through with a chisel.

5. Evans says a "bull"; Mr. H. A. Grueber, F.S.A., who has seen the Glastonbury coin, prefers to style the degenerate form a "horse." Mr. E. H. Willett, F.S.A., speaks of the form as a "butting bull," adding that "it might also be mistaken for a hurdle."

6. The chief work of reference on the tin coinage of Britain is "The Coins of the Ancient Britons," by John Evans, F.R.S., 1864 (pp. 123-126, and Plate H); and his Supplement (pp. 484-5) published in 1890.

A finely preserved tin coin, of a similar type to that from the Lake-village,



FIG. 143.—TWO IRON CURRENCY-BARS AND A BRITISH COIN OF TIN. GLASTONBURY LAKE VILLAGE.

From Drawings by Mr. E. Sprankling.

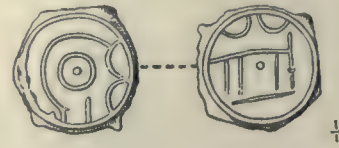


FIG. 142.—BRITISH COIN OF TIN, HAM HILL, S. SOMERSET, 1914.

From a Drawing by Mr. St. George Gray.

was found in September, 1914, by Mr. A. V. Cornish on the Northern Spur of Ham Hill, South Somerset. It weighs 25 grains.

The illustration (Fig. 142) has been taken from *Proc. Som. Arch. Society*, LX, i, 93.

A tin coin from Hod Hill, Dorset (Durden Coll., Brit. Mus.), has three pellets in a triangle instead of the ring in the middle of the head.¹ Two other tin coins from Hod Hill are exhibited in Farnham Mus., Dorset. Another in the British Museum collection was found at Cranborne, Dorset, 1838.

Five tin coins of similar character to that from the Village were found by Maj.-Gen. A. Lane Fox (afterwards Pitt-Rivers) in Mount Caburn Camp, Sussex, three of which have been figured.² Another specimen from the county, found near Eastbourne and weighing 20 grains, has been described by Mr. E. H. Willett, F.S.A.³

A tin coin discovered at Weycock, Berkshire, was associated with Roman remains.⁴

Another tin coin was found at Wood

1. *Arch. Journ.*, LVII, 56.

2. *Archæologia*, XLVI, 495, Plate xxv, figs. 61-3; also p. 470.

3. *Sussex Archæol. Collns.*, XXIX, 112, Plate iii, 17.

4. *Arch. Journ.*, VI, 120.

Eaton, Oxfordshire, where a large variety of antiquities have been collected, as well as other ancient British coins.¹

The British Museum possesses a few specimens of these coins from St. James's Park, London,² and from Lenham Heath, Kent, 1781. Several were found in Quex Park, near Birchington, Isle of Thanet, 1853. A tin coin was discovered at Lilly Hoo, near Luton, which Evans regarded as of Roman origin.³

In Essex several were found at Bardwell, near Bury St. Edmunds; and two from Dunmow, weighing $22\frac{3}{4}$ and $23\frac{1}{2}$ grains respectively. Four examples were found at Braughing, Herts., and two at Sandy, Beds., in 1880 and 1887.

In the Hunter collection at Glasgow there is a tin coin with a boar to right on the obverse; on the reverse an animal possibly intended for a goat; weight 55.2 grains.⁴

Ruding⁵ figures many tin coins as being of British origin, but by far the greater number are undoubtedly Gaulish. Some of the "tin" coins appear to have been made from a base metal of a dull silvery colour. An alloy of copper, zinc, lead and tin, called "potin," was sometimes used.

(2). CURRENCY-BARS.

The discovery of currency-bars at the Lake-village is most significant, as there was the barest evidence of a native British coinage (see Z 1, previously described),⁶ and no trace of contact with Roman civilization. From the description of the two bars found it will be seen that at Glastonbury, as at Spettisbury, both the *unit* and the *double* weight bars were current together, the unit being furnished by the bronze weight found near Neath, which weighs 4,770 grains (309.74 grammes).⁷—See Vol. I, p. 246.

Z 2. Currency-bar of iron, length 708mm. ($27\frac{7}{8}$ ins.)⁸; weight 4,666 grains

1. *Berks., Bucks. and Oxon. Archæol. Journ.*, IV (1898), 43. This tin coin is of the same type as Evans, "Ancient British Coins," Plate H, no. 5. For the other British coins see R. Plot's "Nat. Hist. of Oxon," 2nd edit., 1705, p. 315, Plate xv, nos. 19, 20.

2. A tin coin of the St. James's Park type is exhibited in Reading Museum.

3. Resembling one figured in Ruding's "Annals of the Coinage of Great Britain," 1864, III, Plate iv, 71.

4. Ruding, *op. cit.*, III, Plate iv, 73.

5. *Op. cit.*, III, Plates iii and iv, figs. 53-73. Others are figured by Hawkins in "The Silver Coins of England," but no localities are given.

6. It is just possible that the lake-villagers may have used their amber and glass beads (Chapter X) not only for personal ornament but also as a form of currency. N. Gordon Munro in "Coins of Japan," 1904, mentions beads of blue glass from the dolmens of Japan with a bead of cornelian, which were possibly in use as money 2000 years ago or more.

7. Figured in *Arch. Cambrensis*, 6 ser., V, pt. 2, 144; and *Proc. Soc. Antiq. Lond.*, XX, 189.

8. The length of this bar has been wrongly recorded as 26ins. (*Proc. Soc. Antiq. Lond.*, XX, 184; *E.I.A. Guide, B.M.*, 1905, p. 149; and *Trans. Devonsh. Assoc.*, XXXVIII, 375).

(302 grammes).¹ It roughly resembles a sword, and consists of a flat and slightly tapering blade, the edges of which are blunt (average thickness 3.5mm.). The width of the blade varies from 20.3 to 27.4mm. There is a short rude "handle" (length 29mm.) at the broader end, but it is incomplete; it was formed by hammering up the sides of the blade. This specimen is of denomination 1.

Found 4ft. deep in the peat, 27ft. N.E. of the c.p. of Mound XLVIII, 1894 (Plate XXV).

Illustrated in Fig. 143.

Z 3. Currency-bar of iron, length 541mm. (21½ins.);² weight 9,097 grains (590 grammes); of similar character to Z 2, but nearly twice its weight. It consists of a flat tapering blade of quadrangular section (max. thickness 9.5mm.), with the opposite faces parallel. The width of the blade varies from 16 to 21.5mm. Its well-shaped "handle," with broad flanges, was formed by hammering; length 73mm., max. ext. width 31mm., max. ext. thickness 20mm. This bar appears to be of denomination 2, or *double* weight, the presumed standard being 9,540 grains (619.4 grammes).

Found in the peat outside the palisading, 47ft. S.S.W. of the c.p. of Mound V, 1896 (Plate VII).

Illustrated in Fig. 143.

The identification of objects of this class with the ancient British currency-bars, or iron money,—a medium of exchange in use at the time of Caesar's invasion and called by him *taleæ ferreæ* (Bell. Gall. V, 12), is due to Mr. Reginald A. Smith, F.S.A.,³ though it is only fair to state that Major-General A. Lane Fox (afterwards Pitt-Rivers), when excavating at Mount Caburn Camp in 1877–8, had a shrewd suspicion that bars of iron were used in Britain as a medium of exchange.⁴

The first list of these bars, of any length, was given by Sir A. Wollaston Franks in "Horæ Ferrales" (p. 177) some fifty years ago, and the writer of this chapter published a list of most of the specimens then known in the *Proceedings, Som. Arch. and N.H. Society* in 1902.⁵

Mr. Smith read a paper on "The Ancient British Iron Currency" before the Society of Antiquaries on January 26th, 1905, which created considerable interest

1. This has previously been recorded as 4,653 grains. Both the bars were soaked in hot wax before they were weighed, but they are not heavily coated with the wax.

2. The average length of the bars of this denomination is 31½ins.

3. *Proc. Soc. Antiq. Lond.*, XX, 179–195; XXII, 337–343; XXVII (1914–15). *E.I.A. Guide, B.M.* (1905), 148–150; *Arch. Journ.*, LXIX, 422–427.

4. "It would appear not at all improbable that half-wrought implements of this kind may have been used as a kind of currency" (*Archæologia*, XLVI, 435). Sir A. W. Franks held the same opinion in 1895.

5. Vol. XLVIII, pt. ii, 41–2.

among antiquaries and numismatists, and on a subsequent occasion (December 3rd, 1908) he brought forward some additional information.¹ In 1906, the full report (for 1905) on the excavations at Melandra Castle, Glossop, was published, containing other material bearing on the subject, in Professor R. S. Conway's chapter on "The Trade and Coin Weights found at Melandra," where he divides the weights, previously described by Mr. Thomas May,² under Roman and Celtic standards, using for the latter the "Neath" and "Glastonbury" standard, the unit, as previously adopted by Mr. Smith, being 4,770 grains (about 110zs. av.).

The iron bar-currency consists of graduated weights (*taleis ferreis ad certum pondus examinatis*), and at least six denominations have now been identified, namely, $\frac{1}{4}$, $\frac{1}{2}$, 1, $1\frac{1}{2}$, 2 and 4,—4,770 grains being regarded as the ancient British unit. Bars of denominations $\frac{1}{4}$, $\frac{1}{2}$ and 1 have been found in Wookey Hole Cavern; at Glastonbury and Spettisbury, denominations 1 and 2; and at Meon Hill, denominations $\frac{1}{2}$ and 1. The unit weight has been obtained from at least five places, whereas specimens of denomination 2 have been found on about ten sites. A bar of one-and-a-half times the unit, viz. $16\frac{1}{2}$ ozs., from Salmonsbury Camp, Bourton-on-the-Water, Glos. (Cheltenham Mus.) was described by Mr. Reginald A. Smith, F.S.A., at the Society of Antiquaries on January 28th, 1915.³

As the table below clearly shows, two currency-bars found at Spettisbury (4,703 grains) and the Glastonbury Lake-village (4,666 grains) come very near the presumed standard. Cheese-shaped weights to correspond are known as follows:—Of basalt,—Mayence Museum, 4,767 grains; of bronze,—Neath 4,770 grains; of lead,—Melandra 4,735.4 grains, and Charterhouse-on-Mendip 4,824 grains. The large collection of leaden weights from the latter locality (a district in which currency-bars were in use), presented by Mr. A. Capper Pass many years ago to the Taunton Castle Museum,⁴ appears, however, to be connected for the most part with the Roman standard (unit: *Libra* of 5,050 grains).⁵

1. See also Mr. Smith's Hunsbury paper, *Arch. Journ.*, LXIX, 422-427.

2. *Journ. Derbysh. Arch. and N.H. Soc.*, XXV, 165-173, and XXVIII, 166-168.

3. *Proc. Soc. Antiq. Lond.*, XXVII (1914-15). At the same meeting Mr. Smith described a hoard of nine bronze vessels (water-clocks) found in September, 1914, at Wotton, Surrey. The best bowl is the same weight as the unit currency-bar, and the others that are not too badly damaged were found to be originally of weights corresponding to $1\frac{1}{2}$, 2, $2\frac{1}{2}$ and 3 units (*Surrey Archæol. Collections*, XXVII, 149).

4. The writer has recently weighed the whole collection.

5. Two weights from Charterhouse-on-Mendip, 8,395 and 8,391 grains respectively, compare with a bar from Winchester, weight 8,367 grains.

Three others from Charterhouse approach the *unit* weight (presumed standard 4,770 grains). Their weights are 4,498, 4,824 and 4,847 grains.

Others, again, do not greatly exceed the *half-unit* weight (standard 2,385 grains). Their weights are 2,449, 2,497 and 2,514 grains.

Three others from Charterhouse are not much less in weight than the *quarter-unit* (standard 1,192.5 grains). Their weights are 1,116, 1,148 and 1,181 grains. There are three more which weigh 1,233, 1,255 and 1,285 grains.

TABLE GIVING THE PRESUMED CELTIC STANDARD OF WEIGHTS, AND SOME OF THE IRON BARS AND LEADEN WEIGHTS FOUND IN ENGLAND WHICH COME NEAREST TO THAT STANDARD.

PRESUMED CELTIC STANDARD.			GLASTONBURY L. V. CURRENCY- BARS.	CURRENCY-BARS NEAR TO STANDARD.	WEIGHTS OF CELTIC STAND- ARD, MELANDRA CASTLE.	WEIGHTS FROM CHARTERHOUSE- ON-MENDIP NEAREST TO STANDARD.
Quadruple Weight, 19080 (1236)			—	18758 (1216), Maidenhead	—	—
Double " 9540 (618)			9097 (590)	9679 (627), Hod Hill	—	9634 ⁵ (624)
1½-unit " 7155 (464)			—	7225 (468), ³ Bourton-on- the-Water	—	—
Unit " 4770 ¹ (309)			4666 (302)	4703 (305), Spettisbury	4735·4 (307)	4824 (313)
¾-unit " 3577·5 (232)			—	3372 (219), Malvern	3535 (229)	—
½-unit " 2385 (155)			—	2447 (159), Meon Hill ³	—	2449 (159)
⅓-unit " 1788·75 (114)			—	1750 (113), Meon Hill	1725·2 (112)	1709 (111)
¼-unit " 1192·5 (77)			—	1040 (67), Wookey Hole ⁴	1181·9 (77)	1181 (77)
⅛-unit " 596·25 (39)			—	—	555·8 (36)	543 (35)
1/16-unit " 298·1 (19)			—	—	297·5 (19)	—
1/24-unit " 198·8 (13)			—	—	188·9 (12)	192 (12)
1/32-unit " 149 (10)			—	—	146·8 (10)	154 (10)

THE WEIGHTS ARE GIVEN IN GRAINS (FOLLOWED BY GRAMMES IN BRACKETS).

Fractions of a gramme are not given in this table.

Since Mr. Smith's earlier communications to the Society of Antiquaries a *quarter-unit* currency-bar has been found in Wookey Hole, Somerset (p. 400); and details of other bars from Milborne St. Andrew, Dorset, etc., have been collected (p. 401).

Currency-bars are now known from about ten counties, and the accompanying map (Fig. 144) has been prepared (dated 1912—revised 1914) to show their distribution. Up to the present time no bars have been discovered further north than Hunsbury Camp, Northants. They are almost confined to the southern Midlands and the south and south-west of England.⁶ Worcestershire is represented by two finds; Gloucestershire, two; Berkshire, one; Essex, one (?);

1. Bronze weight, Neath=4,770 grains. Basalt weight, Mayence Museum=4,767 grains. Both these have "I" incised on the top.

2. Approximate weight. Mr. R. A. Smith gives the writer the weight as 16½ ozs. av.

3. *Arch. Journ.*, LXIX, 425.

4. This is 152·5 grains short of the standard, but it is in two pieces and was apparently trimmed in ancient times.

5. This cheese-shaped weight is marked "II." Its weight is only 94 grains more than the presumed Celtic standard, and 66 grains less than the Celtic commercial *mina* (according to the weight given by Professor Percy Gardner—see *Proc. Soc. Antiq. Lond.*, XX, 193).

6. The proximity of the E. and S.E. counties to the Continent would account for the somewhat higher state of culture indicated by an earlier coinage than in the West.

Hampshire (including the Isle of Wight), two; Wiltshire, one; Dorsetshire, three; Somerset, three; and Devonshire, one.¹

It is somewhat surprising that no specimens of these bars were found by General Pitt-Rivers in the R. B. Villages of Woodcuts, Rotherley and Woodyates, and



FIG. 144.—MAP OF THE SOUTHERN PART OF ENGLAND SHOWING THE DISTRIBUTION OF CURRENCY-BARS.

especially as they are found at Spettisbury and Hod Hill at no great distance away.² No doubt other discoveries of the kind will be made as time goes on, and this map is intended only for reference in connection with the following notes on British currency-bars.

SOMERSET.

HAM (or HAMDON) HILL, near YEOVIL.—In Taunton Museum there are nine currency-bars from this locality in various states of preservation. All appear to be specimens of *double* weight (presumed standard 9,540 grains). The three most perfect are much corroded and have scaled a good deal, all being of less weight than the specimen from the Hill in the British

1. The specimen in Aylesbury Museum is marked "Thames," and is believed to have come from the Maidenhead find.

2. Mr. Smith thinks that there was no overlap of iron currency and Roman coinage in Dorset and South Wilts.

Museum. Three of the others which have been weighed are by no means perfect, and the remaining three are in very bad condition. The mean length of the three most complete at Taunton is $31\frac{7}{8}$ ins.

A large number of these bars are recorded to have been ploughed up on a part of the camp called "Stroud's Hill" in May, 1845 (*Proc. Som. Arch. Soc.*, XXXII, pt. i, 82). On p. 47, however, the discovery is recorded somewhat differently,—“nearly a hundred iron swords were ploughed up on the plateau called ‘Butcher’s Hill.’” These “hills” are some little distance apart with a roadway between them, and the “find” is generally regarded as having been made in the former locality. Two of the bars have been figured.¹

The following table will serve as a record of the best preserved of the Ham Hill bars, as weighed in May, 1910 :—

CURRENCY-BARS, HAM HILL, SOMERSET.

(The max. width of the bars, nos. 2 to 7, is $1\frac{1}{2}$ ins.).

	MUSEUM.	LENGTH IN INCHES.	GRAINS.	GRAMMES.	LENGTH OF HANDLE REMAINING.
1	British	$27\frac{1}{2}$	9,187	597	—
2	Taunton	$32\frac{1}{2}$	8,243	535	$2\frac{3}{4}$ ins.
3	Do.	$31\frac{5}{8}$	7,942	515	$3\frac{3}{4}$ ins.
4	Do.	$31\frac{1}{2}$	8,562	556	$3\frac{1}{8}$ ins.
5	Do.	$29\frac{1}{4}$	6,522	423	3 ins.
6	Do.	$26\frac{1}{8}$	6,076	395	$2\frac{1}{4}$ ins.
7	Do.	$24\frac{1}{4}$	4,200	273	—

LANDSDOWN.—A flat piece of iron, 5 ins. long, $1\frac{1}{8}$ in. wide, and $\frac{1}{8}$ in. thick, and “curled over at the end,” was found in the 1907 excavations, and was at first thought to be part of a currency-bar.⁶

WOOKEY HOLE.—Portion of three distinct currency-bars have been found by Mr. H. E. Balch, F.S.A.,⁷ viz., a *quarter-unit* specimen (a denomination hitherto unknown for currency-bars), and portions of a *half-unit* bar and of a *unit* bar. The complete example, which was found in two pieces, is barely $\frac{1}{2}$ in. in width and $\frac{3}{8}$ in. in thickness; total length 275 mm. (nearly 10 $\frac{7}{8}$ ins.); weight 1,040 grains (67.519 grammes). This specimen is therefore only 152.5 grains short of true quarter standard, a difference frequently exceeded when compared proportionately with the weight of larger bars.

1. *Proc. Som. Arch. Soc.*, XXXII, i, Plate iii, fig. 4; *Arch. Journal*, I, 165.
2. The handles of these are incomplete.
3. Figured in *Proc. Som. Arch. Soc.*, XXXII, i, Plate iii, where it is drawn a little short, leading Mr. Smith to give its length as $28\frac{3}{4}$ ins. (*Proc. Soc. Antiq. Lond.*, XX, 183).
4. Part deficient at the narrower end.
5. Very small part of the handle remaining.
6. According to *Proc. Som. Arch. Soc.*, *Bath Branch*, 1907, p. 156, Dr. C. H. Read confirms the suggestion that it was *perhaps* part of one of these bars, but Mr. Smith does not agree (*Proc. Soc. Antiq. Lond.*, XXII, 38).
7. *Archæologia*, LXII, 574; *Proc. Soc. Antiq. Lond.*, XXIII, 404; “Wookey Hole” (1914), p. 88, and Plate xvii, figs. 18, 19, 21.

DEVON.

About a dozen currency-bars were found in 1870 packed together on a flat stone with another flat stone on the top, between Holne Chase Camp and the River Dart, near Ashburton.¹

DORSET.

HOD HILL.—Seventeen² currency-bars, averaging 34ins. long, were found in this well known camp; eight of the specimens are in the British Museum. All appear to be of the *double* weight (presumed standard 9,540 grains).³

MILBORNE ST. ANDREW.—Eleven specimens and fragments of four others, found with a large number, are preserved in the Dorset County Museum.⁴ They were presented by the late Mr. J. C. Mansel-Pleydell in 1884. All of them appear to be of the same denomination as the heavier specimen from the Lake-village; the "blades" vary in width from 1½ins. to 1¾ins., the majority being of the latter size. They are for the most part fragmentary (length from 6ins. to 31ins.). The only specimen practically perfect is coated with varnish and its surface is beginning to flake off; total length 31ins., width of blade 1¾ins., length of "handle" 4¼ins. Its weight, according to a local jeweller, is 23ozs. 12dwts. (Troy), viz., 11,328 grains, which (for the presumed standard of 9,540 grains) is exceeded only by one other recorded specimen (that from Hod Hill weighing 11,484 grains).⁵ Another Milborne specimen (not perfect), measuring 27ins. long, weighs 8,160 grains.

From this hoard Mr. Nelson M. Richardson, of Montevideo, near Weymouth, has three specimens which were bought at the sale of the effects of the late Rev. Nigel W. Gresley, in April, 1910. Mr. Gresley was vicar of Milborne from 1879 to 1887. Mr. Richardson sends the following particulars:—(1) Tip deficient, length 29ins.; length of turned-up "handle" 3ins.; max. width of blade 1½ins.; weight *about* 19½ozs. avoirdupois (8,531 grains). (2) Slightly damaged at end of "handle"; length 30½ins.; length of "handle" 2¾ins.; max. width of blade 1¾ins.; weight *about* 24½ozs. (10,719 grains). (3) Only 1½ins. of the "handle" remain; length 25¾ins.; max. width of blade 1¾ins.; weight *about* 21¼ozs. (9,297 grains).

SPETTISBURY FORT, or CRAWFORD CASTLE.—There are two complete specimens from this camp in the British Museum of the *unit* weight (standard 4,770 grains), and two others of the *double* weight.⁶

In addition to the above, the hoard discovered at Belbury Camp, Higher Lytchett (p. 222), included some iron bars, one of which measured 3ft. long, 1in. by ½in. thick. At one time it was thought that they might be currency-bars, but they have since been described as fragmentary fire-dogs of the Late-Celtic period.⁷

1. *Trans. Devon Assoc.*, VI, 264; XXXVIII, 370; *Proc. Soc. Antiq. Lond.*, XXII, 341.

2. According to Roach Smith, 1868.

3. Specimens are figured in *Collect. Antiqua*, VI, Plate ii, figs. 2, 3; Warne's "Ancient Dorset," Plate ii, figs. 2, 3; *Journ. B.A.A.*, XLVII, plate facing p. 62, fig. 1.

Four other bars "were formerly in the Durden Collection and came from Hod Hill, Spettisbury, or some other site in Dorset" (R. A. Smith, *Proc. Soc. Antiq. Lond.*, XX, 182-3).

4. *Proc. Som. Arch. Soc.*, XLVIII, ii, 41.

5. *Proc. Soc. Antiq. Lond.*, XX, 185.

6. *Proc. Soc. Antiq. Lond.*, XX, 182.

7. *Archæologia*, XLVIII, 116; LXI, 336; LXIII, 7.

GLOUCESTERSHIRE.

BOURTON-ON-THE-WATER.—Two hoards of these bars appear to have been found at Salmonsbury Camp. One hundred and forty-seven examples were discovered together in a gravel pit, and the remains of a box is said to have accompanied them. Another account says 140 were found in the middle of the camp not far from Adlestrop Station. There is a specimen from Bourton in the British Museum and another in the Reading Museum, both of the *double* weight standard.¹ Two of the bars have been figured.² One from Bourton was (October, 1912) in Canon Greenwell's collection at Durham—length 30½ ins. ; and Mr. Parker Brewis, F.S.A., has another. There is another in the London Museum which was presented by Sir R. W. Essex, M.P. Another bar of one-and-a-half times the unit is exhibited in Cheltenham Museum (p. 397), and there is a specimen of a similar bar in Streatham Public Library. Others may be seen in Gloucester Museum.

MEON HILL.—In 1824, 394 of these bars were found in the middle of this camp. One of the *unit* weight was exhibited before the Society of Antiquaries on December 3rd, 1908, and there are four others of the *half-unit* weight in the Ashmolean Museum at Oxford.³ Ten more of this denomination have been traced at Reading and portions of others.⁴ "About twenty were sold at the Honington Hall sale in 1907, but nearly all of these were taken down into Mickleton and worked up into horse-shoes, etc., by the village blacksmith."

The original account of this discovery is given in the *Gentleman's Magazine*, XCIV, September, 1824, p. 262 :—"In the month of June last (1824) as some workmen were searching for limestone in a turnip field belonging to a Mr. Smith, situated in the centre of a Roman camp on Meon Hill, near St. Quentin's, co. Gloucester, they discovered about three feet below the surface 394 javelin-heads of iron, the blades of which were 28 inches long, and three quarters of an inch wide, with the exception of one whose width was two inches. As they were not above the thickness of a shilling, they were probably the same as described by Dr. Meyrick in his 'Antient Armour,' Vol. I, p. xlv, from Livy and Polybius, as having been the weapons of the light troops, and were probably buried here on an emergency, being all found together. The sockets retained some portion of the original wooden staves, which appeared to have been about the thickness of one's finger, and such was the excellence of the steel, that a blacksmith in the neighbourhood has already converted several into knives."

There are three bars, apparently of the *half-unit* weight, in Warwick Museum, which are accompanied by a very old label giving the above particulars.

WILTSHIRE.

The writer made a note in 1902 that about a hundred specimens⁵ were found at Minety.⁶ One of them, 31 ins. long, has been figured.⁷

1. *Proc. Soc. Antiq. Lond.*, XX, 183.

2. *Journ. Brit. Arch. Assoc.*, XIX, Plate 9, figs. 7, 8.

3. Two of these bear traces of wood in the socketed handle, "as though a peg had been inserted for convenience in handling."

4. *Proc. Soc. Antiq. Lond.*, XXII, 339.

5. The authority for the number found was not preserved at the time of taking the notes, and there may be some mistake.

6. *Proc. Som. Arch. Soc.*, XLVIII, ii, 41.

7. *Journ. Brit. Arch. Assoc.*, XIX, Plate ix, fig. 9.

HAMPSHIRE.

There are four specimens from Winchester exhibited in the British Museum of the *double* weight standard.¹

Two were found in 1880 at St. Lawrence, Ventnor ; one figured is 34ins. long.²

BERKSHIRE.

Of the bundle of seven or eight found at the bridge, Maidenhead (about 1894), at least two are of *quadruple* weight standard—about 44 ozs. av.³

OXFORDSHIRE.

An iron "bar" was discovered in 1894 in Lyneham Long-barrow, four miles s. of Chipping Norton. It was found apart from any of the Neolithic and Saxon burials, and was near the surface of the barrow (depth 2ft.).⁴ Recently this object has been acquired by the British Museum, and after close examination it cannot be regarded as a currency-bar.

WORCESTERSHIRE.

On the Malvern Hills, between Great Malvern and the Wyche, 150 specimens were brought to light in 1856. In 1857, a second deposit of 150 was found 3 or 4 yards further up the hill, of which about 100 were complete specimens.⁵ Those preserved in the Museum at Malvern College appear to be of the *unit* weight standard, but they are somewhat at variance with the British weight system as indicated by other specimens.

The "handle" of a small bar was found at Littleton, near Evesham, and is preserved in Worcester Museum.⁶

NORTHAMPTONSHIRE.

A currency-bar of the *double* weight, length 28½ins. and weighing 8,969 grains, was found in "Dane's Camp," Hunsbury.⁷

ESSEX.

Part of a currency-bar (probably of the presumed standard, 9,540 grains) was, according to the collector, Dr. F. Corner, found at East Ham. It is said to have been found under an old barn, 2 or 3 feet below the land surface, and he thinks it was found singly (London Mus., Lancaster Ho.).

1. *Proc. Soc. Antiq. Lond.*, XX, 183. *Archæologia*, XLV, 263, states that there are five from Winchester in the Brit. Mus.

2. *Proc. Soc. Antiq. Lond.*, VIII, 313.

3. In the Bucks. County Museum at Aylesbury is a bar marked "Thames," 19½ins. long and 10,102 grains in weight (or more than 102. avoirdupois in excess of the standard 22 ozs.). It is believed that this is one of the specimens found at Maidenhead (*Proc. Soc. Antiq. Lond.*, XXII, 341).

4. *Proc. Soc. Antiq. Lond.*, XXII, 341.

5. *Op. cit.*, XX, 184.

6. *Op. cit.*, XXII, 340.

7. *Reports, Assoc. Architect. Socs.*, XVIII, 60, Plate iii, fig. 4 ; *Proc. Soc. Antiq. Lond.*, XX, 184 ; *Arch. Journ.*, LXIX, 422-425 ; *V.C.H. Northants*, I, 147.

CHAPTER XIII.

OBJECTS OF BONE.

By H. ST. GEORGE GRAY.

OBJECTS of bone and antler were very plentiful in the Lake-village. The accompanying table shows that 465 specimens of bone were found, as against the 395¹ numbered "finds" of antler described in Chapter XIV.

All the bone objects will be described here with the exception of the eight bone weaving-combs (B 14, B 55, B 120, B 232, B 322, B 329, B 362 and B 371) described in the chapter devoted to those objects (Vol. I, pp. 270, 285, 286).

Many of the bone objects were formed from the remains of young animals, evidence being afforded by the absence of the epiphyses.

SUB-DIVISION WHERE DESCRIBED.	NAME OF OBJECT.	NO. FOUND.
	Weaving-combs of bone, described in Chapter VI	8
I.	Disc, or Roundel	1
II.	"Beads," perhaps of a Necklace (<i>bearing eight numbers</i>)	8
III.	Buttons, or Dress-fasteners	5
IV.	Three Dice (all under one number), and Dice-box ²	4
V.	Needles ³	40
VI.	Potters' Tools ⁴	3
VII.	Worked Rib-bones (? Drill-bows)	3
VIII.	Polishing-bones	25
IX.	Worked Scapulæ	2
X.	Long-bones of Ox and Horse with slits and perforations	38
XI.	Worked Tibiæ of Sheep and Goat	65
XII.	Perforated Metacarpi (19) and Metatarsi (133) of Sheep	152 ⁵
XIII.	Objects with perforations (<i>miscellaneous</i>)	20 ⁶
XIV.	Gouge-shaped Objects	5
XV.	Awls	5
XVI.	Worked Splinters	17
XVII.	Gnawed Bones (<i>numbered</i>)	11
XVIII.	Knife-cut Bones (<i>numbered</i>)	25
XIX.	Worked Bones (<i>miscellaneous</i>)	28
	Total	465

1. Another, marked H 211, is *bone* and is described in this chapter.
2. Two dice of antler in addition have been described in this chapter.
3. A needle of antler has also been included under this heading.
4. H 3, a potter's tool, catalogued as being of antler, is described in this chapter, but not included in the table above.
5. In four cases one number represents two specimens each (B 4, B 298, B 375 and B 398).
6. Three of these specimens are included under one number (B 295). One of the twenty is marked H 211 (antler), but it is probably of bone and is included here.

I. DISC OR ROUNDEL.

One of the most interesting objects of bone from the Village is the disc or roundel (B 59) of human skull-bone—part of the table of the occipital bone of an old person, with a slight trace of the lambdoid suture. The disc is of concavo-convex section, measuring from 67 to 70mm. in diam., and from 6 to 7mm. in thickness. It is perforated centrally by a hole 10mm. in diam. on the external surface, but larger on the inner side (11 by 13mm.). Professor A. Keith, F.R.S., who has seen it, was unable to say whether it was removed from the skull before or after death.

The disc was found in the peat under the clay, 16½ft. N.W. of the c.p. of Mound LXIV, 1892. It is figured in Plate LXIII, B 59.

Its precise use is unknown, but it is generally regarded as an amulet or charm for superstitious purposes, and may have been worn on the person. The edges are very smooth. Perforated amulets of stone have been in use up to the present day in Somerset and elsewhere,—a subject which has been dealt with by the late Mr. F. T. Elworthy, F.S.A.¹ Possibly it was used as a spindle-whorl.

A small flat bone roundel, about 1½ins. in diam., was found in Heathery Burn Cave in 1892²; the perforation is somewhat excentric. A perforated bone disc of similar dimensions to B 59 was found at Newstead, near Melrose.³

The Lake-village disc is also figured and described in Professor Boyd Dawkins's chapter on the Human Remains.

II. "BEADS," PERHAPS PART OF A NECKLACE.

B 386 to B 393. The objects here described were found scattered over a space several feet square, in the black earth under the clay floors of Mound LXX, in a thick layer of fire-ash to the N. and W. of Hearth ix, 1905 (see p. 155, and Plan, Plate XXXIII).

From the number of these objects (many fragments being found besides those that are numbered) and their similarity in form and size, it is thought probable that they formed part of a double-stringed necklace, two of the plain "beads" being threaded horizontally to every ornamented one vertically, as shown in the drawing, Fig. 145.⁴

1. See references to his name, *re* amulets, in the Chapter on Flint.

2. *Archæologia*, LIV, 87.

3. Curle's "Roman Frontier Post," Plate lxxxiv, fig. 12.

4. A similar type of necklace, or collar, of perforated teeth, small fish vertebrae and shells, was found in the caves of the Baoussé-Roussé, near Mentone, and is figured in the book on the subject, by Dr. R. Verneau, 2nd edit., 1908, p. 90, fig. 19.

B 386 to B 392 represent seven separate beads ; B 393 includes eight specimens. Most of these beads have been cut from the shaft of metacarpal and metatarsal



FIG. 145.—B 386, 387, 388, 390, AND 393. PIECES OF PERFORATED BONE, BELIEVED TO BE "BEADS," STRUNG TOGETHER IN THE FORM OF A DOUBLE-STRINGED NECKLACE. GLASTONBURY LAKE VILLAGE.

From a Drawing by Mr. E. Sprankling.

bones of sheep or goat, but a few of them appear to be of bird-bone. All of them are calcined to a white or cream colour.

The plain pieces of cut bone, with the natural tubular hole, are of much about the same length, varying from 31·4 to 37·7mm. ; only one of these is ornamented (with one dot-and-circle). These pieces would be the horizontal beads of such a necklace as that figured.

The shorter pieces, length from 22·5 to 29mm., have each a pair of perforations bored transversely and laterally. Most of them are ornamented with the dot-and-circle pattern, as seen in the illustration. These pieces are the vertical beads of the ornament.

III. BUTTONS OR DRESS-FASTENERS.

A number of short pieces of carpal, tarsal and other bones of sheep, goat, etc., perforated and worked, have been found in the Village, some of which cannot be named or properly classified. Five of these objects, however, are of a distinct type, and consist of tubular pieces of bone varying in length from 26·5 to 29mm., and in max. ext. width from 8 to 11·8mm. Two of them, B 28 (Fig. 149) and B 409, have single perforations through the middle of one of the sides ; and the others, B 209, B 258 and B 385, have holes in the same position but through both surfaces of the bone. The circular holes are about 3·3mm. in diam. B 385 is calcined.¹ B 409 is ornamented with faintly incised diamonds, intersected by parallel lines arranged transversely (Plate XLIV).² B 209 (Fig. 149) is ornamented on its four sides by a single line of four depressed dots (on one side there are three single dots and a pair close to one of the ends).

1. Figured in *Proc. Som. Arch. Soc.*, LI, ii, plate facing p. 95.

2. A tabular object, similarly ornamented, but having three perforations right through, was found at Silchester (Reading Mus.), and is described as "part of the frame of a musical instrument," the holes intended "for the reception of keys for the purpose of regulating the strings."

They were found in five dwellings, as follows :—

B 28	in Mound	XXIV,	4ft. s.w. of the central picket,	1893
B 209	do	XVIII,	8½ft. w. do.	1895 (Floor ii).
B 258	do.	IX,	12ft. n.w. do.	1896.
B 385	do.	LXX,	11½ft. N. do	1905.
B 409	do.	LXXV,	7½ft. s.w. do.	1907 (Floor ii).

These objects may have served as buttons to fasten garments. Similar objects have been found elsewhere, including Hunsbury (Northampton Mus.), the Settle Caves, Yorks (Brit. Mus.),¹ Ravencliffe Cave,² and a pit-dwelling at Beckhampton (Devizes Mus.).³ Another, with transverse hole through both surfaces, was found at Ashbury, near Lambourne (J. W. Brooke Coll., Marlborough). A similar object was found in a Viking grave in the Isle of Oronsay (Edinburgh Mus.).⁴

IV. DICE AND DICE-BOX.

Under this heading six specimens will be described, viz., two dice of antler (H 99 and H 248), three dice of bone (B 286); and a cylindrical object of bone (B 52), perhaps a dice-box (Fig. 146).

The latter consists of portion of a femur of ox or horse cut from the shaft, which although slightly on the curve gives a wide oval section, averaging 42 by 48mm. externally. All the cancellous tissue has been removed, and the inner surface is trimmed down smooth to the hard bone. It is 78mm. (about 3ins.) in height. The straight lip of the "box" is well worn and polished from prolonged use; it is ornamented externally, at a distance of about 6.8mm. below the rim, by an incised line which encircles about two-thirds of the box. The lower two-thirds of the object are ornamented horizontally by three raised bands, the intervening grooves almost penetrating the thickness of the bone. The ridges, from top to bottom, are 11, 17 and 13mm., respectively in width, and the grooves between are 6.5mm. in width; the upper band has been cut away on one side of the box. There is no ornamentation beyond this.

If this object was originally closed at the lower end, there are now no traces of any groove, rebate, or rivet-holes, for the purpose of securing a bottom. There is, however, a slight discoloration on the inner surface at the base, and the box may have been provided with a tightly fitting bone or wooden bottom.

It was found in the peat at the margin of the Village, 14ft. E.S.E. of the c.p. of Mound XXI, 1893, but not in association with any dice.

1. Two of different types were found, *Collect. Antiq.*, I, Plate xxix, fig. 2, and p. 72.
2. *Journ. Derbysh. Arch. and N.H. Soc.*, XXXII, 149, and Plate iii, fig. ii, no. 9.
3. *Cat. Devizes Mus.*, pt. 2, Plate xx, fig. 9. (No. in Cat., 854).
4. *Proc. Soc. Antiq. Scot.*, XLVIII, 293.

There are some examples of bronze dice-boxes in the national collection, but no specimens of bone or antler. The bronze dice-box (*fritillus*),¹ figured in the British Museum "Guide to Greek and Roman Life" (1908), p. 196, fig. 205, with its cordons and horizontal bands, bears a striking resemblance to the Glastonbury box, and supports the surmise that the latter specimen may really have been used as a dice-box.



FIG. 146.—DICE AND DICE-BOX, GLASTONBURY LAKE VILLAGE.
From Drawings by Mr. E. Sprankling.

The ordinary cube-shaped dice, marked 1 to 6, were widely used by the Greeks and Romans. The usual arrangement of numbers was 1 opposite 6, 2 opposite 5, and 3 opposite 4, but other kinds occur.

The following is a description of the dice found in the Lake-village:—

H 99. Die consisting of a solid piece of antler, length 22mm.; squared sides, 6.8mm. (Illustrated in Fig. 146). The numbers represented by the dot-and-circle pattern on the four sides are 3, 4, 5, 6, the ends not being marked in this or in any of the other specimens.²

1. This is one of a pair of dice-boxes acquired from the Payne Knight Collection. It is 2.1ins. in height, and 1.9ins. in diam. No details of the "find" have been preserved.

2. One of the dice cut from a bone (B 286), however, happens to have one hole at one end and two at the other; they appear to be natural, and the double hole is formed by the central septum. These holes, probably, have no significance.

H 248. Die formed from a solid piece of antler, length 21mm.; squared sides measuring from 5.5 to 6.3mm. The numbers as in H 99.

B 286. Three bone dice varying in length from 21 to 23.5mm., all being of quadrangular cross-section, with sides from 5.2 to 8mm. (Two of them are shown in Fig. 146). The numbers are all represented by small circular depressions on the four sides of the dice; in two cases the numbers are 3, 4, 5, 6; in the other 3, 4, 6, 6.¹ Two are solid; one hollow, formed apparently from the shaft of a metatarsus of sheep or goat.

The three dice, B 286, were found together near a group of twenty-three small pebbles or *calculi* (S 21), on the fourth floor of Mound IV, 10½ft. s. of the c.p., 1896. H 248 came from the same dwelling, but from the second floor, 13¾ft. s.e. of the c.p., 1897; and H 99 was found in the black earth, 18ft. s.s.w. of the c.p. of Mound XLII, 1894.

Dice have been obtained at La Tène, Lake of Neuchâtel,² and from many British and Continental archaeological sites, but space forbids us giving many references. Roman dice, with the numbers marked by two concentric circles enclosing a dot, have been found at Colchester, and may be seen in the museum of that town. Two examples were discovered near the neck of a human skeleton with other Roman remains in a grave on Gilton Down, Ash, Kent.³ Two cube-shaped leaden dice were obtained in the excavations at Melandra.⁴

A bone (or antler) die of the same form as those from the Village, and having numbers 3, 4, 5, 6, was found at Barbury Castle, N. Wilts, whence other Late-Celtic remains (pp. 230, 370) have been obtained (Marlborough College Mus.). Three oblong dice, about 1¼ins. long, two of which have the numbers marked by dots-and-circles, were found in the Broch of Burrian, North Ronaldsay⁵ and two others, 1¾ and 2ins. long respectively, were discovered in the Broch of Ayre, Orkney⁶ (Edinburgh Mus.). A tubular bone die of oblong form, long and wide, marked 3, 4, 5, 6 on the long faces, was found at Silchester (Reading Mus.).⁷ Another bone die, not tubular, but of the same form, length 1¾ins., was found at the Roman Baths at Bath (Pump Room Mus.); the sides are marked 3, 4, 5, 6, both the ends being marked 1. The marks consist of concentric circles enclosing an inlaid dot of lead.⁸

1. M. Déchelette quotes a die of this form marked 1, 2, 3, 3, 4, 5. *Manuel d'Archéologie Préhistorique Celtique et Gallo-Romaine* (1914), p. 1397, fig. 623.

2. *L.D. of E.*, 295; *L.D. of S.*, Plate cxxiv, fig. 4.

3. Figured in "Inventorium Sepulchrale" (1856), p. 7.

4. Figured in the Melandra Report, 1905, by Prof. R. S. Conway, p. 112.

5. *Proc. Soc. Antiq. Scot.*, X, 11; *Cat. Nat. Mus. Antiqs., Edinburgh*, 1892, p. 233, GB 229-231.

6. Figured in *Proc. Soc. Antiq. Scot.*, XLVIII, 43.

7. *Silchester Collection Guide*, Reading Mus., 1912, Plate iv, no. 29.

8. *Cat. Roman Remains, Bath*, by A. J. Taylor, 1913, p. 44.

V. NEEDLES.

Of the numbered bone objects found in the Village, forty needles (and fragments) are included.¹ A needle of antler, H 24, will also be described here (Fig. 147).

The position of three of the needles was unrecorded, and the others were distributed over eighteen dwellings. The group comprising Mounds LXII, LXIII and LXIV in the N. of the Village produced eight of the specimens. In Mound XVIII six needles were revealed, three of which (B 192, B 193, and B 194) were found near the door-step, 14½ ft. E.S.E. of the c.p., 1895. Five were uncovered in Mound XXXVII, and four in the area covered by Mounds LXXI, LXXIII and LXXIV. In addition to these, single specimens were found in Mounds XV, XXIV (H 24), XXV, XXX and XLIV. Mound XLII, in which two needles were revealed, also produced nine weaving-combs; and Mound LXII, from which four needles were obtained, added six weaving-combs to the collection.

Eight needles (or parts) were found in Mounds II, III and IV, in the S. of the Village (three in No. II, four in No. IV, and one in No. III). In the last-named dwelling a number of incomplete and broken bone needles (not numbered) were found, together with quantities of chips and splinters of bone produced presumably during the manufacture of the needles and possibly of pins also (p. 68). They were restricted to a limited area of ground near the junction of Mounds III and IV. The forty-one needles were found in all sorts of deposits and at various depths.

The needles may be classified under the following types² :—

A. Those having ring-heads, with eyes more or less circular (about 3mm. in diam.), and having little bone between the eye and the top of the head; the slender shafts are of almost circular section. The perfect needles vary in length from 41 to 61.5mm. :—B 113,* 114,* 115, 116,* 117, 210.*

B. Those having a more or less pointed head extending from 4 to 17mm. beyond the eye, which is not always round; the width of the needle is greatest at the eye, tapering away in both directions. In cross-section the needle is generally a flat oval. The perfect needles (excluding H 24, separately described) vary in length from 39.5 to 76.5mm. (about 3ins.), and are generally slender³ :—B 112,* 194, 220,* 315, 320, 361,* 376,* 405⁴; H 24.*

1. Some of the rude pin-shaped fragments mentioned on p. 431 may be pieces of needles.

2. All those in italics (numbering twenty-four) appear to have been made from bird-bone—more than one-half of the whole series.

3. A similar needle to Type B was found on the Ghegan Rock, near Seacliff, East Lothian (*Proc. Soc. Antiq. Scot.*, VIII, 375).

4. Figured in Plate xlv.

C. Similar to B, but roughly made, the max. width varying from 6·5 to 8mm. ; flat and (excepting B 330) fragmentary :—B 152,* 188, 312, 330.*

D. Those which cannot be classified under A or B, being broken across the eye :—B 56, 78, 130, 271, 318, 331, 414.

E. Similar to C, but broken across the eye ; the max. width varies from 4 to 10mm. :—B 129, 192, 193, 311, 335,* 343,* 345, 352, 372, 400.

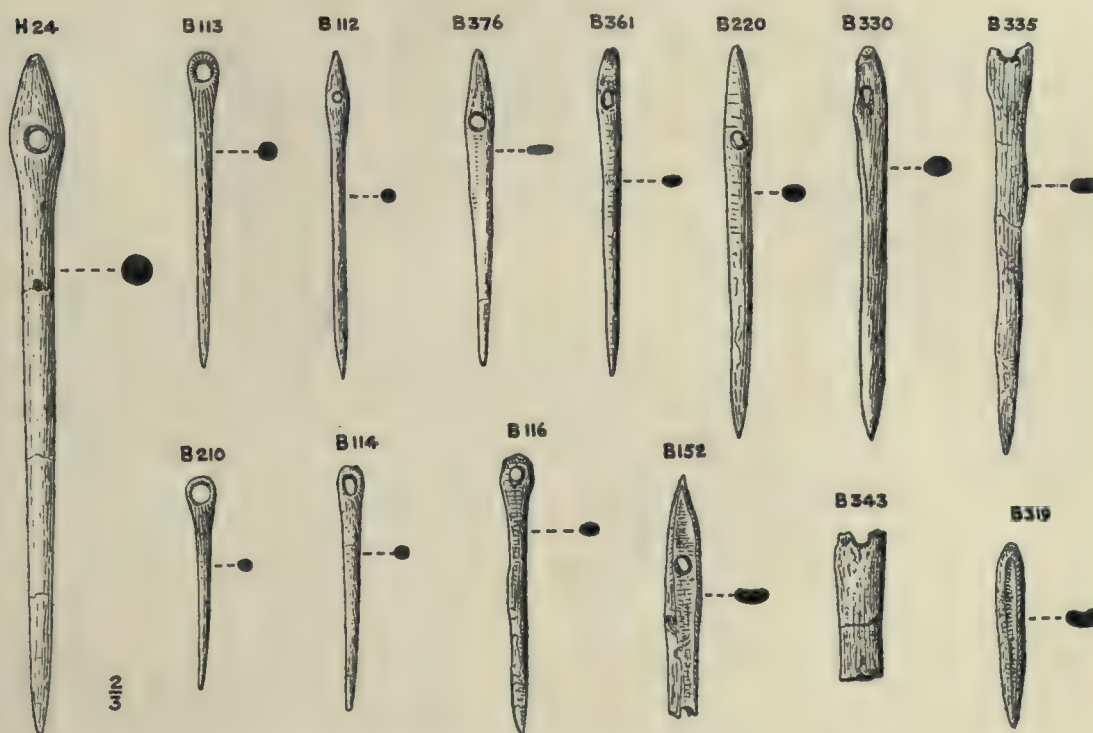


FIG. 147.—TYPES OF WELL FINISHED AND RUDELY FORMED NEEDLES ; ALL OF BONE, EXCEPT THE LARGEST (ANTLER). GLASTONBURY LAKE VILLAGE.

From Drawings by Mr. M. S. Bevan.

F. Pins,—perhaps needles in process of manufacture, and needles broken off below the eye :—B 17, 208, 292, 319,* 346.

Those marked by an asterisk (*) are illustrated in Fig. 147.

The bone needles of Type A are finely made, the ring-head of B 210 being very delicate, and B 113 is an excellent specimen of careful and skilful workmanship. Of Type B, B 376 is the most remarkable, and is very highly polished. B 112 has the distinction of having a comparatively small eye, only 1·8mm. in diam. Of Type C, B 152 ought perhaps to have been described elsewhere, as it has two holes, one of irregular form near the pointed head, and another at a distance of 26mm. across which the implement is broken.

Turning to Type D, B 56 is a slender, sharp-pointed and highly polished needle. Of Type E, four specimens (B 311, B 335, B 343, B 400) are extremely rude, heavy, flat and wide, and must have been used for the coarsest of sewing. Included with Type F is a short, squat, well polished pin, without perforation, which is possibly a needle in process of manufacture ; it is 35.5mm. long and 5.5mm. in max. width.

H 24 (Fig. 147) is an extremely fine needle of antler, found in Mound XXIV, 6ft. S.E. of the c.p., 1893. The shaft is of circular section (max. diam. 6mm.), and near the top it enlarges to provide width for boring the circular eye which is 5mm. in diam. on the faces and about 4mm. half-way through the perforation. The top of the implement is pointed, the head being lozenge-shaped in general outline with a max. width of 10mm. The length of this needle is nearly 5½ins.

Five bronze needles were found in the Village, the two complete ones, E 43 and E 254, being of Type B.¹ Four of them are figured in Plates XLII and XLIV. No iron examples have been found.

Bone needles have been so commonly collected from archæological excavations that it will be quite unnecessary to draw up a list of such " finds " of the Late-Celtic and Roman periods.² It might, however, be mentioned that bone needles have been found in Wookey Hole,³ in Gough's Cavern, Cheddar (Weston-super-Mare Mus.), and on Ham Hill, S. Somerset (Taunton Mus.),⁴ comparable with some of the types from the Village.

VI. POTTERS' TOOLS.

Tools which can definitely be connected with the manufacture of pottery in the Village are scarce, and only four bone⁵ objects can be classified as potters' tools. They are as follows :—

B 148. Modelling-tool consisting of one end and part of the shaft of a bone, very smooth from prolonged use. It has an angular point, the working edge being oblique to the long axis of the implement ; length 127mm.

Found in brushwood near the palisading, 25½ft. S.E. of the c.p. of Mound XLVIII, 1894.

Figured in Plate LXIII.

1. A bronze needle of the same type, and having incised ornamentation on the sides of the eye-enlargement, was found on Ham Hill, S. Somerset, 1915 (A. V. Cornish Coll., Taunton Mus.).

2. Pitt-Rivers brings together a valuable list of references to needles, chiefly of the Bronze Age, in " Excavations in Cranborne Chase," IV, 177.

3. *Archæologia*, LXII, Plate lxxix ; Balch's " Wookey Hole " (1914), Plate xxvii, B. Another was found in Ebbor Cave, near Wookey.

4. Two highly polished bone needles, one of which is broken across the eye, were found with Late-Celtic remains at " Ham Turn," 1907 (*Proc. Som. Arch. Soc.*, LIII, i, 85 ; one of them is figured in Vol. LVI, ii, 59) ; two others were found on Site D and Site E (*Proc.*, LVII, i, 115, 117).

5. One of them is perhaps of antler, and is marked H 3.

B 205. Modelling-tool of the same character as B 148, but smaller; formed from a splinter of bone, length 53mm.

Found 10½ft. N.W. of the c.p. of Mound XVIII, 1895.

Figured in Plate LXIII.

B 241. Part of a rib-bone, probably of sheep; from the squared butt-end; the sides of the implement gradually taper to a rounded point; length on the outer curve 161mm. It bears signs of considerable use, and may have been of service as a tool for inscribing ornamental designs on clay vessels before firing. The tool would also serve as a borer.

Found in the peat outside the palisading, 31½ft. S.E. of the c.p. of Mound LVI, 1896.

H 3. Well preserved modelling-tool of bone or antler, length 91mm., with a shaft of round section—now incomplete at the butt. Towards the working-end the implement is of oval section. The oblique edge is still wonderfully sharp, length 10mm., and both sides of the blade are evenly bevelled. This implement is more shapely than the similar object, B 148, Plate LXIII.

Found 11½ft. N.E. of the c.p. of Mound XXII, 1893.

Figured in Plate LXIV.

VII. WORKED RIB-BONES (? DRILL-BOWS).

The three objects recorded here have sometimes been spoken of as drill-bows used perhaps in connection with boring or fire-making. We have, however, no definite evidence that the villagers obtained fire by this method; and it is very doubtful if these "bows" were long enough for such a purpose. The Point Barrow Eskimo drill-bows, according to Mr. John Murdoch,¹ "are not less than a foot or more than 16 inches long"; and, according to Mr. E. W. Nelson,² the Eskimo about Bering Strait uses drill-bows from 12 to 18ins. in length, "some of which are nearly straight while others are strongly curved. They are square, suboval, or triangular in cross-section."

The two specimens from the Village, complete as regards their length, measure 8½ins. (B 25) and 10⅔ins. (B 394) respectively, along the outer curve. The third example (B 282) is fragmentary (Plate LXIII, and Fig. 140).

If not drill-bows they may perhaps have served as handles for oblong tool-bags, satchels, or work-boxes. Such objects, bearing a close similarity to drill-bows, are used by the Eskimo.³

The following is a description of the worked bow-shaped rib-bones from the Village:—

B 25. Worked shaft of a rib-bone, length on the outer curve 220mm.; of plano-convex cross-section. Within ½in. of each end is a transverse perforation from the external to the internal surface, 4.3mm. in diam.; the ends are squared with rounded corners. The external surface is neatly ornamented with oblique knife-cuts forming a row of diamonds, with half-

1. *Ninth Ann. Report, Bureau of Ethnology*, Washington, 1887-8, p. 176.

2. *Eighteenth Ann. Report, Bureau of Ethnology*, Washington, 1896-7, p. 84; and Plate xxxvi.

3. *Op. cit.*, Plates xli and xliii.

diamonds along the margins. Near one end, in an irregular space, is a series of three concentric circles perfectly inscribed enclosing a dot.¹ As the illustration shows it was badly fractured near the middle, and at this point on one edge a zigzag ornament seems to have been begun but by no means completed.

Found on the first floor of Mound XLIV, 5ft. w. of the c.p., 1893.

Figured in Plate LXIII.

B 282. Part of a rib, slightly curved, with smooth flat surfaces, and trimmed a little at the borders; near the end, which is rounded, is a transverse hole, 4mm. in diam.—not quite equidistant from the edges. Like B 394 it is unornamented.

Found in Mound V, 3½ft. N.N.W. of the c.p., 1896.

Figured in Plate LXIII.

B 394. Smooth shaft of a rib-bone, length along the external surface 259mm.; the flatter end has rounded corners. There is a transverse perforation near each end, diam. about 4·2mm.

Found on the second floor of Mound LXXI, 12½ft. w. of the c.p., 1905.

Illustrated in Fig. 140, p. 373.

VIII. POLISHING-BONES.

Under this heading twenty-five worked bones are included, all bearing more or less distinct evidence of having been burnished,—several of them highly polished.² Some of these were probably used for burnishing the surface of pottery.

The following bones were used for the purpose:—

Sheep or Goat:—Metacarpus (fragment), one (B 97); metatarsi, seven. *Ox*:—Tibia, one; metacarpus, one; metatarsi, eight. *Horse*:—Metatarsi, four. *Red-deer*:—Metatarsus, one. *Fragments*:—One rib-bone, polished and scratched; one charred fragment.

Of these, one metacarpus of ox (B 175), two metatarsi of ox (B 143, B 287), and one metatarsus of horse (B 302) are figured in Plate LXIII.

Of the metatarsi of sheep, three (B 195, B 218, B 301) are broken, B 218 being charred also; and two (B 36, B 368) are complete bones. B 166 is cut off transversely near the distal end, and B 278 has the shaft worn down just above that end.

The metacarpus of ox (B 175) bears evidence of cutting on the flat side. Of the metatarsi of ox, B 68 has the ends broken (Brit. Mus.), B 160 is in Taunton Mus., and B 353 is only slightly polished. The surfaces of B 143 (Plate LXIII), previously to being polished, were roughly “stabbed” by some implement. B 225 is highly polished and has been slightly cut down on the under-side. B 263 is

1. The Eskimo was fond of the dot-and-circle pattern for the ornamentation of drill-bows and other bone and antler objects (*Ninth Report, B. of E.*, 178), but more frequently the drill-bows have one or more of the surfaces covered with etchings, representing various incidents in the life of the owner, such as a record of the animals killed by him in various hunts, etc.

2. Two or three polishing-bones of similar type have been found in Wookey Hole. (See H. E. Balch's book on the subject, Plate xxiii, B, figs. 11, 12).

much weathered, B 267 bears a few knife-cuts, and B 287 (Plate LXIII) is highly burnished on all its faces. B 303 is the lower half of a tibia of ox.

The metatarsus of red-deer (B 396) has the condyles wanting; it is remarkably smooth and exhibits evidence of having been considerably gnawed at both ends.

The distribution of these bones in the Village has no special significance. Twenty-four of the specimens came from sixteen mounds. Two each were found in Mounds VIII, IX, XVIII and LXXI. Five of the bones (B 249, B 278, B 301, B 302, and B 303) were uncovered in or near Mound V.

IX. WORKED SCAPULÆ.

The remains of two worked scapulæ, apparently of ox, were found in the Village, and they have been repaired as far as possible. In the Meare Lake-village over thirty worked shoulder-blades have been found in one dwelling,¹ and two of them are ornamented with lines of designs of dots-and-circles.

B 264 (Fig. 153) is a scapula which has been repaired from many fragments; its present length is $8\frac{1}{4}$ ins. The spine on the dorsum surface and the small coracoid process have been cut down; at the articular end is a hole (diam. 5.5mm.) for suspension penetrating from the neck to the glenoid fossa. B 305 is larger ($10\frac{1}{4}$ ins. in length) with hole 8mm. in diam., but it is worked exactly in the same manner as B 264.

Their precise use has not yet been determined.

B 264 was found 7ft. N. of the c.p. of Mound IX, 1896; and B 305, $7\frac{1}{2}$ ft. S. of the c.p. of Mound V, in the same year.

X. LONG-BONES OF OX AND HORSE WITH SAWN NOTCHES AND PERFORATIONS.

This group of implements is not an easy one to classify, because all the specimens are more or less broken, with the exception of B 177 and B 198, both about 9 ins. long.

The thirty-eight bones which come under this heading are either tibiæ, humeri, or femora—of ox and horse; the ox bones are much more plentiful than horse, and tibiæ are far more numerous than humeri, femora being represented by only three bones.

The length of all the bones has been reduced intentionally—in nearly all the cases—by the removal of both the proximal and distal ends: the former is generally roughly broken off, but in at least six cases (B 2, B 66, B 177, B 198, B 217, B 231) the saw has been used—sometimes in more than one direction.

1. These will be described elsewhere. The perforated articular end of a scapula of ox found in the lake-dwellings in Holderness, Yorks, is of a different character (*Archæologia*, LXII, 599).

The distal end has in many cases been roughly broken off leaving jagged edges, but in the case of the tibiae, two of horse (B 2, B 118) have had the distal end and part of the shaft sawn off transversely at right-angles to the length of the bone, and six of ox (B 177, 178, 198, 231, 297, 299) have been treated in the same manner. In only two cases (B 67, B 451) does the distal end remain, and in one of these instances (B 451) the condyles have been removed. B 67 is also interesting

because it is bored longitudinally at this end by a hole through the cancellous tissue 19mm. in diam., as if intended for the attachment of a shaft or handle; and B 451 has a socket-hole measuring 19 by 13mm. Another tibia of ox which was sawn through close to the distal end also shows a socket, 18 by 14mm., bored through the cancellous tissue. However, in all cases the medullary canal renders the bones tubular throughout their length, but where cancellous tissue was exposed by the saw or otherwise it has been removed more or less completely.

The predominating features in the working of these bones are the sawn notches, or slits, which occur in some of the specimens and vary in number from one to three, and the circular perforations which are found in the majority of the implements and vary in number from one to eight, some being in pairs through opposite sides of the bone. In all cases the notches and the perforations occur just below the head of the bone and sometimes for a short distance down the shaft, but never near the distal end.

In making a rough classification of these bones, eight must be excluded from the main collection, for the reason that some of them

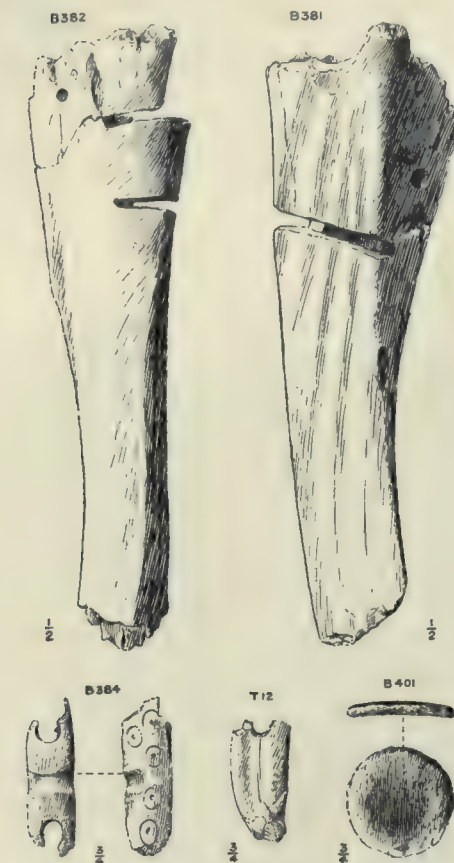


FIG. 148.—B 381, B 382, ANIMAL'S BONES, NOTCHED AND PERFORATED. B 384, PERFORATED BONE OBJECT, CALCINED. B 401, BONE DISC, CHARRED. T 12, DOG'S TOOTH, PERFORATED. GLASTONBURY LAKE VILLAGE.

From Drawings by Mr. E. Sprankling.

are only the discarded sawn off ends, and others are very fragmentary.¹

Twenty-nine specimens remain, and of these three are femora of horse or ox,

1. B 77, B 183 and B 407, are parts of shafts, showing slight saw-marks, the first having a hole also. B 53 and B 259 are two sawn heads of tibiae either broken off complete tools or removed intentionally. B 181 and B 300, the distal ends of two tibiae of ox sawn off transversely—waste pieces in forming implements. B 190 is fragmentary, but affords evidence of having had one slit.



OBJECTS OF BONE, GLASTONBURY LAKE VILLAGE.

From Photographs by Mr. H. St. George Gray.

four are parts of humeri—presumably of ox,—four or five are tibiae of small horse, and the rest are tibiae of ox. The surfaces of all the bones are more or less polished by constant use, but slightly incised cuts, marks of gnawing, scoring, file and other tool-marks, are seen on some of the specimens.

Two of the three femora (B 64 and B 65) are pierced with holes and have a single notch ; the other (B 207) has a single notch only.

The humeri (B 196, B 219,¹ and B 237)² are pierced with holes, but one (B 254) has a deep notch also (Plate LXIII).

The tibiae may be classified as follows :—³

A. With three transverse notches through the posterior surface, and single holes through the external and internal surfaces of the bone :—B 2.*

B. With remains of two notches penetrating the external and internal surfaces only, and two perforations through the posterior surface :—B 297.

C. With two transverse notches through the posterior surface with perforations :—B 382,⁴ 383.

D. With one notch or slit through the posterior surface, but without any perforations remaining :—B 187.

E. The same as D, but with a single perforation through the external and internal surfaces of the bone :—B 7, 118, 178,* 265, 381.⁵

F. With one notch through the external or internal surface, and with one or more perforations remaining :—B 155, 177,* 189, 231, 257, 299, 340, 451.⁶

G. With no indications of a definite notch, but with from four to eight perforations :—B 66, 67,* 161,* 198,* 217.*

Those marked by an asterisk (*) are illustrated in Plate LXIII.

B 2 is an exceptional specimen not only because it has three almost parallel notches, but also on account of the size of the single perforation through the external and internal surfaces ; both these holes diminish in size in the thickness of the walls of the bone from without inwards, and their average ext. diams. are 8mm. and 11.5mm. respectively (Plate LXIII).

B 217 is sawn through transversely well below the head, and at the other end is roughly broken across the shaft. A circular hole has been bored through the anterior ridge and this is crossed transversely by a long narrow clean-cut saw-mark which does not entirely penetrate the thickness of the bone. Through the internal surface are two round perforations of different gauges, and there are two of varying sizes through the posterior wall. At the angle formed by the external and posterior surfaces are three circular perforations arranged vertically. The eight holes vary from 4 to 5.5mm. in diam. (Plate LXIII).

1. In the Brit. Mus.

2. In Taunton Mus.

3. In some cases no doubt notches and perforations are now missing, judging from the bad condition of some of the implements.

4. In the Brit. Mus. Illustrated in Fig. 148.

5. In Taunton Mus. Illustrated in Fig. 148.

6. The bone is broken off above the notch, and there is, therefore, no evidence of perforations.

The fragmentary implement, B 340, has on the internal surface an irregular hole apparently "pecked" out and another through the posterior wall. On the internal surface there is also a round hole broken out at the edge, and two incipient holes which almost touch one another.

The perforations, taken as a whole, have no special arrangement and but few of the holes have corresponding positions on two surfaces of a bone, except in the case of those of Type E.¹ Some of the holes were carefully drilled; others, as previously stated, roughly bored.

The notches are for the most part very carelessly cut by means of a saw, and they sometimes vary in width throughout their length; this is notably the case in the middle slit of B 2, and the slit of B 187, B 189 and B 299. Their width varies from 2 to 6.5mm. Most of the slits are cut square to the long axis of the bone and there is little aberration in this respect. As some of the notches penetrate the bone to more than half its depth, the liability to breakage must have been considerable. It is perhaps rather surprising that these notches and perforations show such little signs of wear.

These implements have been found in twenty-one of the dwellings, twelve producing single specimens only. Two examples each were found in Mounds XXIII, XLIX, and LXII. Mounds V and IX produced three each, and Mound XXVII four; whilst no less than six were brought to light in the excavation of Mound XVIII.

Such bones appear to have rarely been found elsewhere. A worked tibia having perforations near the proximal end but no notches, has been found in Wookey Hole.² A small part of a similar object was unearthed at Stoke Abbot, West Dorset (Mus., Bridport Lity. Inst.); it has a sawn notch, and another parallel to it incompletely cut. A tibia with ends sawn off and having, near one end, rather large circular perforations (four on one surface, two on the opposite surface) was found at Othona, Bradwell-on-Sea, Essex (C. W. Parker Coll., Colchester Mus.). Another with two circular holes near the head and broken off at the single sawn notch is in Liverpool Museum in the collection of remains found in the submerged forest and shores at Leasowe and Hoylake, Cheshire.

For what purposes were these implements used? This is a question we are unable to answer. Several suggestions have been made from time to time, but in my opinion the use of these common implements still remains unsolved, and it is therefore necessary to leave the question open for the present. From the fact that the notches and perforations show so little trace of friction it is assumed that their edges did not come into contact with hard substances.

It is just possible they may have been used in connection with the separation and removal of flesh from the ligaments and tendons of animals, before being dried

1. It should be noted that B 161 has two *pairs* of large perforations piercing the external and internal surfaces (but no slot).

2. Balch's "Wookey Hole" (1914), Plate xxiii, B, fig. 1.

in the sun and afterwards split up and twisted into thread as required. The bones with more than one slot may have been used for the separation of a thick sinew into two or more longitudinal sections. Little or no wear would result from such a process. The villagers undoubtedly placed great value on strong fine thread.

XI. WORKED TIBIÆ OF SHEEP AND GOAT.

These worked bones are made from tibiæ of sheep and goat,¹ the head and greater part of the shaft forming the implement. With few exceptions the articular

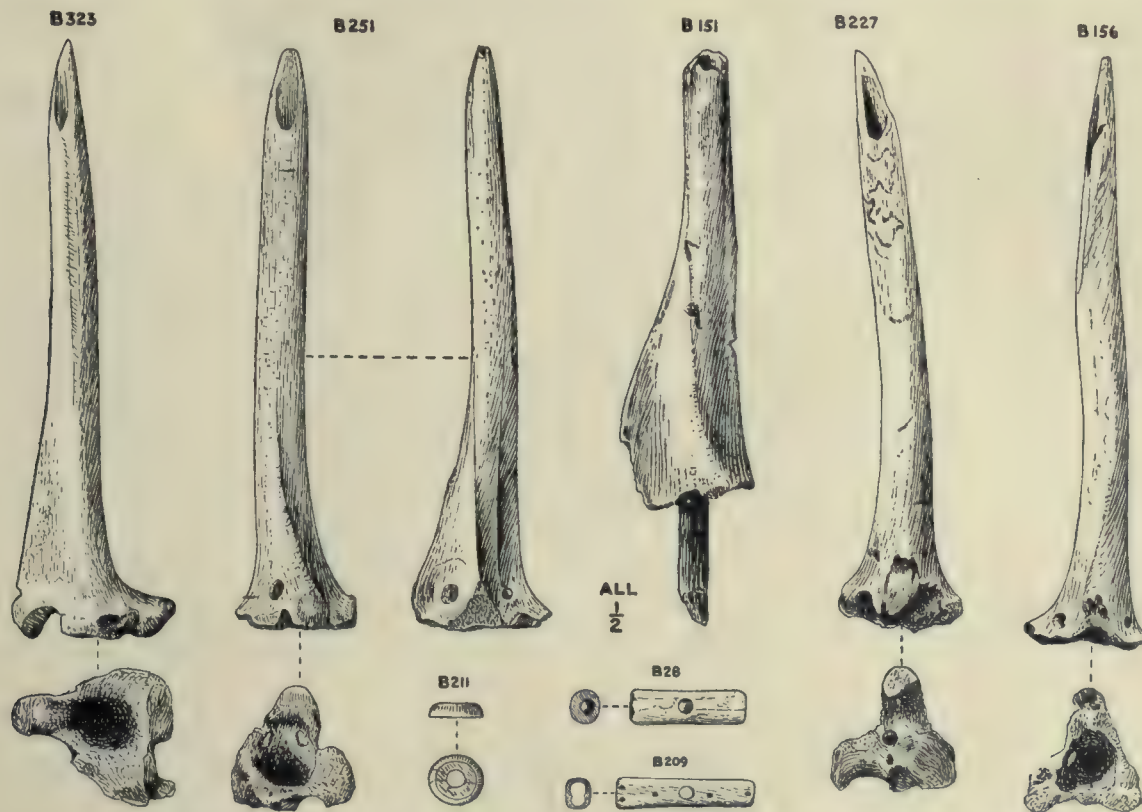


FIG. 149.—WORKED TIBIÆ OF SHEEP OR GOAT, PERFORATED, AND OTHER OBJECTS. GLASTONBURY LAKE VILLAGE.
From Drawings by Mr. M. S. Bevan.

surfaces of the head have been removed intentionally, and the epiphyses of some examples are missing owing to the fact that many of the bones used were those of young animals. In a large number of instances the heads were bored longitudinally, forming a tapering socket about $\frac{5}{8}$ in. in diam. at the mouth,² as if intended for the insertion of a wooden shaft or handle. Some of these

1. A few of the series belong possibly to other small animals.
2. The most perfect socket bored longitudinally at the head of the bone (the epiphysis wanting) is $\frac{1}{2}$ in. in diam. at the mouth (B 290).

specimens are, in addition, pierced transversely just below the head from the inner to the outer side of the bone (in one and the same line) with perforations 4mm. in average diameter,—no doubt intended for the insertion of a rivet to secure the handle. Evidence of the sockets being filled by a wooden shaft is afforded by B 151, which has a large splinter of wood (presumably oak) still remaining in position in the socket and projecting $1\frac{1}{4}$ ins. beyond the head of the bone (Fig. 149). Unfortunately the pointed end of this tool is missing.¹

The “business-end” of the implements has been sharpened, sometimes roughly, the bone being cut through obliquely from one surface to the opposite side for a length averaging $1\frac{3}{4}$ ins., and of course exposing the medullary canal. Although the working-end is bevelled, smooth and worn from prolonged use, there is a large amount of evidence that the sharpening of the point was the result of knife-cutting, the finishing being done sometimes by means of a file. The average length of these worked bones is $6\frac{1}{4}$ ins.

Some of these tools are worked to a sharp point (see B 71, Plate LXIII), whilst others are blunt-pointed, and a few have a gouge-shaped curve (like B 11, Plate LXIII). B 328, judging from its shortness (length $3\frac{1}{8}$ ins.), appears to have been broken and re-worked to a smooth chisel-like edge, bevelled from both sides (Fig. 153).

Many of these specimens are so fragmentary, some being split and otherwise broken, that it is evident that they were subjected to hard usage and thrown away when their condition rendered them no longer useful for carrying out satisfactory work.

These tools from the Lake-village may be classified as follows:—

A. Implements, complete, or nearly complete, with the articular surfaces of the head of the tibia missing, and bored longitudinally:—B 41, 44, 70, 144, 229, 280,† 290, 323.*

B. Like A, but without socket:—B 13, 50, 253.

C. The same as A, but having a transverse perforation right through the side and close to the head²:—B 42, 69, 74, 134, 147, 154, 156,* 224,³ 252,⁴ 285, 327,⁵ 328* (Taunton Mus.), 341,⁵ 360, 402.†

D. The same as C, with the pair of perforations, and a third hole at the back of the head:—B 26, 251.*

E. Implements, incomplete at the butt end, bored longitudinally, but the

1. It is not included in the summary which follows.

2. The figures in italics refer to specimens having a single perforation on one side, the corresponding one not being seen (if it ever existed) owing to fracture.

3. B 224 is illustrated in Fig. 140.

4. Besides the single perforation, there is another (badly formed) close beside it on the same side.

5. In Brit. Mus.

former existence of perforations doubtful :—B 11,† 12, 30, 49, 71,† 72, 75, 137, 262, 449.

F. Implements, complete, the articular surfaces of the head remaining, and trimmed at the “business-end” :—B 227,* 248. (B 227 has a small hole at the butt-end, Fig. 149).

G. From half to three-quarters of the implement remaining—the pointed end :—B 5, 21, 31, 73, 76, 162, 165, 184, 197, 221, 235, 256, 260, 284, 317, 342, 395 (Taunton Mus.), 450.

H. Fragmentary :—B 81, 139, 212, 446, 447, 448.

Those marked by an asterisk (*) are illustrated in Figs. 149 and 153; those marked (†) in Plate LXIII.

Sixty-five specimens were collected, and their distribution was fairly uniform throughout the Village, one or more being found in connection with thirty-two dwellings. Mound XLV produced four specimens, Mound XXV six, and Mound V (from which so many antiquities were obtained) seven. Three each were collected from Mounds XIX, XXVII, and XXXVIII.

An implement of this kind was found in the R.B.V. Rotherley broken off at the head and consequently showing no perforation.¹ It is described as a “gouge or other implement formed of a tibia, flattened and smoothed by use at the small end.” Tools of similar form have been found at Ham Hill (Taunton Mus.),² in Wookey Hole,³ on Jordan Hill (Weymouth), at Grimthorpe near Pocklington (Brit. Mus.), in the Highfield Pits, Salisbury (Blackmore Mus.), at Solisbury Camp, near Bath (Bath Mus.),⁴ in Borness Cave, Kirkcudbrightshire,⁵ etc.

XII. PERFORATED METACARPI AND METATARSI OF SHEEP.⁶

A very large proportion (about one-third) of the bone objects found in the Village, viz. 152 of the numbered objects, is the series of perforated and worked metatarsi and metacarpi of sheep, which, although found commonly in the Village, are comparatively rare from other Late-Celtic sites.

The worked carpal bones are much less numerous than the tarsals. With one or two exceptions the two kinds of bones are perforated with holes in different

1. P.R. *Excavations*, II, Plate cxvii, fig. 5.

2. *Proc. Som. Arch. Soc.*, LVII, i, 113.

3. The Wookey specimens include one having a bone rivet in position and another having an iron rivet (*Archæologia*, LXIV, 342, and Plate xxvi, fig. 2, *d, e*); see also Balch's “Wookey Hole” (1914), p. 113, and Plate xxiii, 17, 19, 21–23.

4. *The Antiquary*, XLV, 423, fig. 6, A.

5. *Proc. Soc. Antiq. Scot.*, X, Plate xix, no. 14.

6. Although the greater number of these bones are sheep, many of them are probably goat.

positions,—presumably for different purposes. In some cases the shafts are considerably worn down owing to prolonged use. Many of them are the bones of young animals, with the epiphyses wanting at the distal end.

Metacarpal Bones.—The typical example is a complete bone, with the proximal and distal ends perfect in adult specimens. A circular perforation, having an average diameter of 4mm., penetrates both walls of the shaft from the convex face to the flat side—that is, on the line of the least width. None of these bones

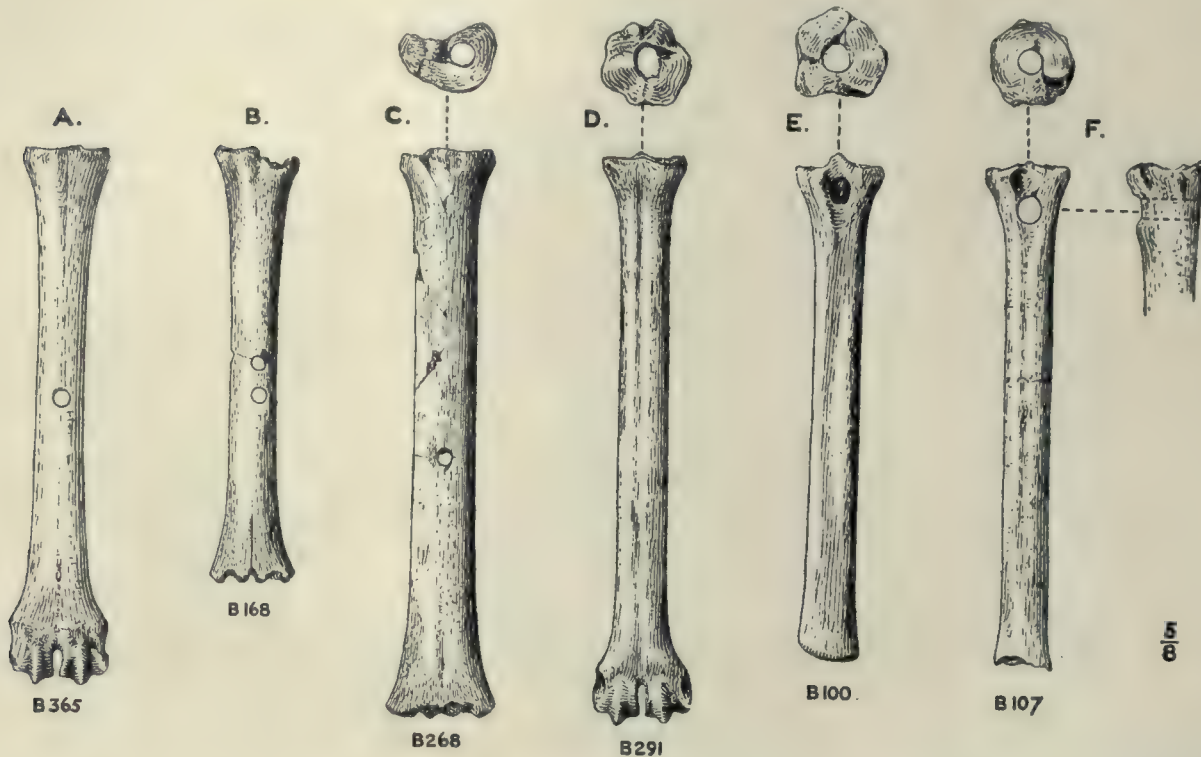


FIG 150.—TYPES OF THE PERFORATED METACARPAL AND METATARSAL BONES OF SHEEP (OR GOAT) FOUND IN THE GLASTONBURY LAKE VILLAGE.

[The types A—F are described in the letterpress].

From Drawings by Mr. M. S. Bevan.

are bored longitudinally throughout their length, as is the case with a few of the tarsals, and the distal end is never intentionally cut off.

Three types of these worked bones, represented in Fig. 150, have been found in the Village :—¹

1. They were found in various layers—from the surface to below the clay. Eight of them were found in the E. of the Village (Mounds XX, XXII, XXIII, XXIV and XXV), and five in the S. (Mounds III, IV and V). One each from Mounds XVI, XXVII, LVI and LXIX.

A. Seventeen examples¹ with a single hole which varies in size, the diameters being 2.5, 3, 4, 4.5 and 5mm. (but generally 4mm.). The hole in one instance (B 273), however, is irregular, having a diameter of 5mm. on one face and 8mm. on the other, including the countersinking—which is an unusual feature (Plate LXIII).

B. A carpus (B 168) with two holes through the middle of the shaft (both nearly 4mm. in diam.), their nearest edges being 4mm. apart. The only parallel at present known to the writer is the specimen found by General Pitt-Rivers at Woodcuts;² in this case, however, the two holes are not placed centrally along the shaft, but are near the distal end, and there is a longitudinal hole bored at the flat, or proximal, end.

C. A carpus (B 268) with a single hole, 4mm. in diam., piercing both walls of the shaft, and another (diam. 6mm.) bored longitudinally at the proximal end. A precisely similar bone was found in the Borness Cave, Kirkcudbrightshire, the opinion being given that "it may possibly have been a whistle."³ Another example of this type was found in the R.B.V. Woodcuts, but the hole in the shaft pierces only one surface.⁴

A third bone with a single central perforation right through the shaft (in this case a metatarsus) was found at Woodcuts.⁵ General Pitt-Rivers says, "Those found at Woodcuts appear to me possibly to have been used for winding string, or perhaps as netting-needles or as a bobbin." He also found a carpus with a single central perforation right through, in the R.B.V. Rotherley;⁶ and another was collected from the Late-Celtic rubbish-heap near Oare, Wilts (Devizes Mus.).⁷ Another Wiltshire specimen (fragmentary) comes from Knap Hill.⁸ A similar but imperfect carpal bone with central perforation was found, with Romano-British remains and human bones, in Coronation Road, near St. John's Church, Weston-super-Mare, and is exhibited in the Museum of that town. Another, broken, was found in Wookey Hole.⁹ "A perforated metacarpal of sheep, fashioned into an implement resembling a shuttle" was found on Hod Hill

1. The seventeen examples bear the following numbers :—B 1, 3, 8, 9, 10, 63, 176, 206, 228, 243, 273, 279, 288 (Brit. Mus.), 298a, 304 (Taunton Mus.), 365 and 366.

2. P.R. *Excavations*, I, p. 175, no. 1.

3. *Proc. Soc. Antiq. Scot.*, X, Plate xxii, no. 143, and p. 497.

4. P.R. *Excavations*, I, p. 175, no. 2.

5. *Ibid.*, no. 3.

6. *Op. cit.*, II, Plate cxvii, fig. 6.

7. *Wilts Arch. Mag.*, XXXVI, 137, and Plate iii, B; and *Cat. Devizes Mus.*, pt. 2, Plate xlviii, B.

8. *Cat. Devizes Mus.*, pt. 2, Plate lxi, fig. 12.

9. "Wookey Hole" (1914), Plate xxiii, B, fig. 18.

(Pit A).¹ Not knowing the manner in which it is perforated it cannot be classified here.

These bones with central perforation through both surfaces of the shaft are not confined to the south, for, in addition to that found in the Borness Cave (p. 423), another is recorded from the Broch of Lamaness, Sanday (Edinburgh Mus.).² Another was found at Papcastle, and has been described as a whistle (Carlisle Mus.). Two others which came from the Roman station on the Lawe, South Shields, may be seen in the Black Gate Museum, Newcastle-on-Tyne.

Metatarsal Bones.—Besides the examples described here, several fragmentary specimens were also found—but damaged too much for classification and therefore not numbered. No less than 132 specimens,³ however, have been catalogued; and these are divisible into three types, represented in Fig. 150 :—

D. Tarsals, generally complete, with one hole bored longitudinally at the flat, or proximal, end.

E. Tarsals, generally having the condyles at the distal end removed (cut or sawn), with one hole bored longitudinally at the proximal end like D, and a single hole on one side close to the same end.

F. Similar to E, but with the side-hole penetrating opposite surfaces of the bone in one and the same line. This type is rare.⁴

The catalogue numbers of all these bones are given so that their position in the mounds, etc., can be identified on the plan sheets in Vol. I, the prefix being B (bone).

TYPE D.—Total number, 65.

(1). Of typical form (see D in Fig. 150) :—B 4a, 4b, 18, 22, 27, 33, 34, 35, 37, 40, 43, 51, 57, 125, 127, 132, 133, 150, 159, 163, 170, 199, 200, 202, 203, 204, 213, 214, 216, 238, 239, 242, 244, 281, 283, 291, 293, 296, 348, 350, 398b, 411, 418, 421, 426, 427, 429, 437 to 444.

(2). Of typical form, but having the condyles cut off at the distal end :—B 108, 136, 277, 349, 431.

(3). With the proximal end trimmed down almost level :—B 180, 408.

(4). With incipient hole on one side of the middle of the shaft where the bone was broken off and subsequently polished :—B 403.

(5). Of typical form, but carpals (*not* tarsals) :—B 135, 445.

1. *Arch. Journ.*, LVII, 60.

2. *Proc. Soc. Antiq. Scot.*, XII, 599.

3. Another, with bronze spindle, B 272, is described on p. 426.

4. The Meare Lake-village has produced another variety (scarce) similar to F, but without the hole bored at the proximal end longitudinally.

TYPE E.—Total number, 63.

(1). Of typical form, with condyles removed intentionally at the distal end (see E, in Fig. 150):—B 15, 20, 32, 48, 98, 100 to 104, 106, 164, 182, 223, 233,¹ 245, 261, 275, 276, 289, 298b, 324, 332, 333, 336, 337, 344, 347, 367, 373,² 375b,² 398a, 404, 416, 432.

(2). Of typical form, but damaged too much to be classified with certainty under (1) or otherwise:—B 24, 38, 39, 99, 105,* 110, 201, 215, 274, 316, 351, 357, 358, 359, 369, 417, 419, 420, 430, 434, 435, 436.

(3). With the proximal end trimmed down almost level:—B 158,* 325.

(4). With the proximal end removed more completely than in (3):—B 172, 338, 339.

(5). Of typical form, but with additional side-hole badly formed and not in line with the other side-hole:—B 111.

TYPE F.—Total number, 4.

Similar to Type E, but with the side-hole penetrating the opposite faces of the shaft:—B 107, 246,* 375a,³ 433. (One of the pair of holes broken in B 246 and 433).

These tarsal bones were fairly evenly distributed over the Village and were found in various positions in connection with forty-three mounds, seventeen of which produced three or more examples. Twenty-five specimens were uncovered in the s. centre of the Village in connection with Mounds XVI, XVIII, XXVII and XXXVII; and thirteen were found in the extreme s. in Mounds II, III, IV and V. Four each were also found in Mounds XIX, LXV and LXXIV; Mound XXIII produced six, and Mound LXII, ten.⁴ The position of only thirteen was not recorded. There is therefore little to be learnt from their provenance.

These perforated tarsals have been rarely found elsewhere. Mr. H. E. Balch figures a few similar bones of Types D and E found in Wookey Hole (Wells Mus.).⁵ One specimen of Type D was found with pottery, etc. (of little importance) in a refuse-heap at Steart (or Stert) Common Gate, near the mouth of the Parret (Taunton Mus.).⁶ A similar bone (Type D) was found in the R.B.V. Rotherley, but it is

*. Figured in Plate lxiii.

1. This specimen has an incipient side-hole.

2. B 373 is in Taunton Mus.; B 375b in the Brit. Mus.

3. In Taunton Mus.

4. In this mound six weaving-combs were found. In Mound XXVII four combs were obtained, and in Mound LXXIV, seven. (Vol. I, 269).

5. *Archæologia*, LXII, 583; "Wookey Hole" (1914), Plate xxiii, B, figs. 2-10.

6. *Proc. Som. Arch. Soc.*, LII, i, 70.

broken towards the distal end and the shaft is bored longitudinally throughout its length by a hole 0.26 in. in diameter.¹ A specimen of Type D was found at Goodramgate, York, 1878 (York Mus.).

Their Purpose.—We have been in considerable doubt as to the precise use to which these types of metacarpal and metatarsal bone objects were put, but a most important clue is afforded by the object marked B 272, which was found 18½ ft. N.W. of the central picket of Mound IV, 1896. It is a badly preserved metatarsus

of Type E, in several brittle fragments, but the proximal end is practically perfect, with the hole at the end bored longitudinally and a side-hole close to the same end. The interior of the shaft of this bone contains a bronze spindle which appears to be tubular (ext. diam. about 2.5 mm.) at the proximal end, but in the greater length of the shaft it is a solid bronze pin having a varying diam. from 1 to 2 mm. The tubular part contains a substance which appears to be wood (diam. about 1 mm.). It is hoped that a better preserved example having a spindle may be found in the neighbouring lake-village at Meare.

It is probable that this object was used as a spool in a shuttle² in the manner shown in Fig. 151.³ General Pitt-Rivers found such a bobbin in a shuttle in actual use in a crofter's hut close to the Callernish Stones, Island of Lewis, Hebrides.

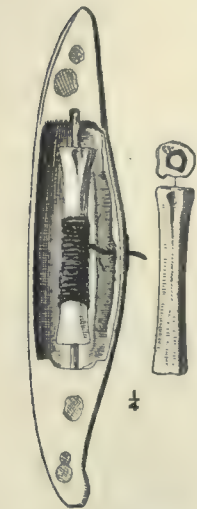


FIG. 151. — SHUTTLE WITH BONE BOBBIN, ISLAND OF LEWIS, HEBRIDES.

(After Pitt-Rivers).

If this Glastonbury bone with spindle was used exactly in this manner it is difficult to understand the purpose of the side-hole. A few of the tarsal bones, as previously stated, are bored longitudinally throughout their length and bear evidence of much wear; their suitability for being used with a metal spindle is apparent.

Another plausible suggestion as to the use of the tarsals of Type E with two perforations has been put forward by the Rev. C. W. and Mrs. Whistler, who have executed specimens of weaving in three colours (to be seen in Taunton and Glastonbury Museums) showing the manner in which the weft can be worked in by means of wooden models of the worked tarsal bones so commonly found at Glastonbury. The wool (the material used in this case) was drawn off these "bobbins" as required for the weft, passing through the channel connecting the perforation at the end with the hole at the side, to prevent the unrolling of the wound-on wool. The result was most satisfactory, and the pattern copied was the typical "step-pattern" of the period.

1. P.R. *Excavations*, II, Plate cxvii, fig. 7. Fig. 8 is similar, but more trimmed.

2. It might be recorded here that a shuttle with bobbin is carved on a bench-end in Kingston Church, near Taunton. (Figured in *Proc. Som. Arch. Soc.*, XVIII, i, plate following p. 40).

3. Copied from Pitt-Rivers. (*Excavations*, II, 173).

Mr. Henry Balfour, independently, suggested something similar, remarking that the process would do well for narrow-band weaving, though not so suitable for wide cloth. Such a bobbin is illustrated in Fig. 152, with the wound-on thread in position, the end to be used passing through the two perforations in the bone. The thread cannot, however, be "drawn off" through the hole, and must be passed round the hinder end of the bone loop-wise, as the mass does not revolve on the bone.

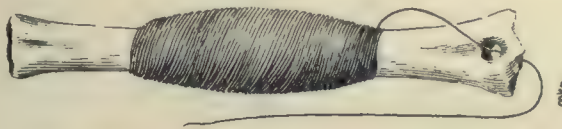


FIG. 152.—BONE "BOBBIN" WITH THREAD WOUND ON.

XIII. OBJECTS WITH PERFORATIONS (MISCELLANEOUS).

These twenty specimens are of a miscellaneous character,—either bone objects with one or more artificial perforations, or worked bones with natural tubular holes, the cancellous tissue having been removed. They will be described separately.

The seven unornamented specimens, having tubular holes through the length of the bone, are as follows :—

B 222. Ferrule cut from the shaft of a bone of almost circular section (diam. 20mm.) ; length 12mm.

Found in Mound XVII, 3½ft. s. of the c.p., 1895.

B 226. Part of the shaft of a metatarsus of sheep, cut off square at both ends ; calcined throughout ; length 34mm.¹

Found outside the palisading, 30ft. N.W. of the c.p. of Mound LXIX, 1895.

B 295. Three pieces of cut and polished metatarsal bone of sheep, forming tubes, length 50, 45 and 42mm. respectively ; one cut from the proximal end of a bone, the two others from the distal end.²

Found together in Mound V, 7½ft. w. of the c.p., 1896.

B 355. Part of the shaft of a metatarsus, probably of small ox, length 65mm. (about 2½ins.), trimmed down to a perfectly circular section (diam. 20mm.) ; highly polished, including the squared ends.

Found in Mound XXIX, 6ft. N.N.W. of the c.p., 1898.

Figured in Plate LXIII.

B 413. Shaft of a metatarsus of sheep cut off and smoothed near the distal and proximal ends, forming a tube 85mm. in length.

The twelve remaining miscellaneous specimens are :—

B 6. Distal end and shaft of a tarsal bone, deeply fluted (probably roe-deer), length 82mm. Near the distal end are two transverse perforations (diam. 4mm.) close together and set obliquely

1. This is similar to the so-called longitudinal "beads" of a bone necklace (see Fig. 145).

2. Plain tubes of bone were found at Cold Kitchen Hill (Devizes Mus.).

to the line of the bone, which is highly polished. A tarsus, with the articular ends wanting, and having a transverse perforation at both ends, was found in Wookey Hole, 1910.

Found in Mound XXIII, 4ft. s.w. of the c.p., 1893.

Figured in Plate LXIII.

B 16. Polished shaft of a long-bone, cut off square at the ends; length 92mm., tubular. Close to one end and at a greater distance from the other end are two holes (diam. 4.5mm.) penetrating opposite surfaces of the bone in the same line.

Found in Mound XLIV, 6½ft. N. of the c.p., 1893.

Figured in Plate LXIII.

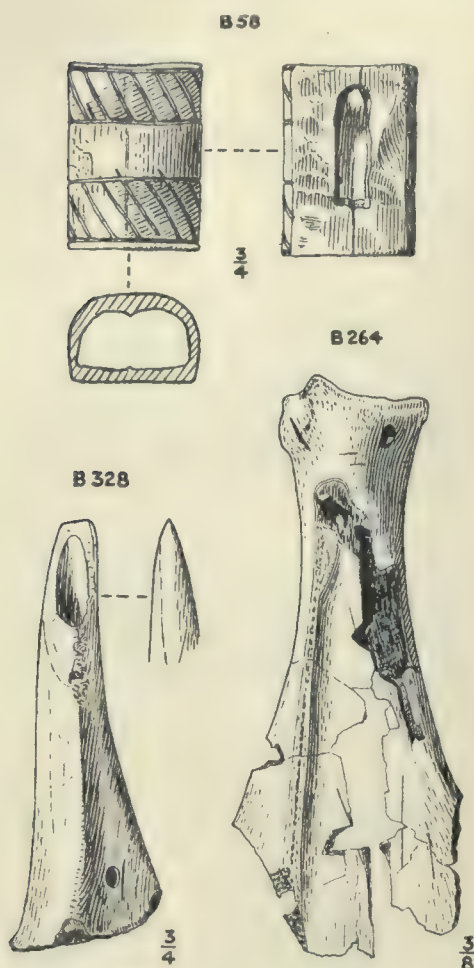


FIG. 153.—BONE OBJECTS, GLASTONBURY LAKE VILLAGE. (See pp. 415, 420, 428).

From Drawings by Mr. M. S. Bevan.

B 58. Short piece of the shaft of a metatarsus of ox, tubular, and cut off square at both ends; length 34.5mm.; highly polished. The under-side of the object has been trimmed down almost flat, the knife-marks being clearly seen; through this surface is a roughly cut oblong slit (about 21 by 6mm.) nearer one end of the object than the other. The convex surface is divided transversely into three bands of equal width, the two outer being ornamented with oblique and parallel incised lines.

Found 17½ft. N.N.E. of the c.p. of Mound LXIII, 1892.

Illustrated in Fig. 153.

B 109. Distal end of a sheep's tibia, length 57.5mm., having a transverse perforation close to the end; on one side the hole is about 5mm. in diam.; on the opposite side the hole is roughly oval, measuring 15.5 by 9mm.

B 206. Piece of a radius (? sheep), smooth, with a perforation about 5mm. in diam.

Found 15ft. w. of the c.p. of Mound XXVII, 1895.

B 211. Small, smooth, flat disc, 14.5 by 13mm. (thickness 3.3mm.), with a central perforation 5mm. in diam.; on one face the disc is bevelled all round the margin; white from calcination.

Found on the second floor of Mound XVIII, 9¼ft. N.W. of the c.p., 1895.

Illustrated in Fig. 149.

B 230. Piece of polished rib-bone, bearing knife-cuts at one end and a perforation (diam. 5mm.) at the larger end.

Found in the peat outside the palisading, 21ft. N. of the c.p. of Mound LXI, 1895.

Figured in Plate LXIII.

B 314. Portion of a tarsal bone, probably of deer, length 122mm., having an oval perforation near one end penetrating both sides.

Found 10¼ft. s.s.e. of the c.p. of Mound IV, 1897.

Figured in Plate LXIII.

B 377 and B 378. Part of a metacarpus and part of a metatarsus of sheep or goat, both about 1½ ins. long, and both having three transverse perforations along the shaft right through the bone on the flat sides.

B 377 was found in the peat, 7 ft. from the s.e. margin of Mound LIV, and B 378 in a similar position but 10½ ft. from the margin, 1904.

Figured in Plate XLIV.

A similar object with four holes, from Hod Hill, Dorset, is exhibited in the Brit. Mus. (Durden Coll.), and is regarded as possibly being an incomplete musical instrument. Another similar object, described as a flute, from London, has been figured.¹ Bone "flutes" from Lincoln and near Cambridge are shown in the Brit. Mus.

B 384. Fragment of worked bone, calcined (? bird-bone), with an incised dot-and-circle in five places on one surface. On another surface is a transverse groove, on either side of which is a circular perforation through the bone, 3.5 mm. in diam.

Found below the clay of Mound LXX, 12½ ft. N.N.W. of the c.p., 1905.

Illustrated in Fig. 148.

B 406. Piece of a highly polished bone broken at one end; length 52.7 mm. On one side only, near the complete end, is a perforation of elongated oval form (length 10 mm.), slightly pinched in at the middle.

Found in the black earth below the clay of Mound LXXIV, 14 ft. s.w. of the c.p., 1906.

H 211. This object, although marked "H," is of bone. It consists of part of the shaft of a tibia of sheep or goat, both ends of which have been removed. The whole surface has been highly polished. At the middle of the shaft the tool has been sharpened obliquely in a similar manner to the tibiae described in Section XI of this chapter (for instance see Fig. 149, B 251). The other end has been cut off square leaving a cylindrical hole for a wooden shaft which was secured by means of a rivet—as indicated by the circular rivet-hole which penetrates one side of the socket. Length 76 mm.

Found in Mound IV, 5½ ft. N.N.E. of the c.p., 1896.

XIV. GOUGE-SHAPED OBJECTS.

With one exception these five objects were found in the south of the Village. All of them are damaged but B 269. Although they are classified as gouge-shaped objects, the actual purpose of some of them is uncertain. They are as follows:—

B 119. Part of the shaft of a metatarsus of ox, polished from use, sawn through at the base and sharpened at the "business-end." The point of the tool has been broken off and it is uncertain what form it took.

Found 19 ft. s. of the c.p. of Mound XLVI, 1893.

Figured in Plate LXIII.

B 169. Part of the shaft of a bone, polished from prolonged use; worked to a bevelled cutting-edge and perforated at the butt; length 142 mm.

Found in the peat outside the palisading, 19 ft. s.e. of the c.p. of Mound I, 1894.

Figured in Plate LXIII.

B 171. Proximal end of a metatarsus of ox, roughly worked into a gouge-shaped object; broken at the point.

Found on the surface of Mound II, 10½ ft. E. of the c.p., 1894.

1. *Cat. Guildhall Mus.*, 1903, Plate xxxiv, fig. 14.

B 269. Large gouge-shaped implement, complete, length 144mm.; the butt-end is bored longitudinally, and there is a pair of rivet-holes for securing a shaft. The cutting-edge is very smooth and bevelled on both sides. This tool has had considerable wear and the surface is faintly scored with tool-marks.

Found in Mound VI, 4ft. w. of the c.p., 1896.

Figured in Plate LXIII.

B 412. This specimen is much damaged at the working-end. The butt-end has been bored longitudinally, and there is a pair of rivet-holes to secure a shaft.

Found in Mound II.

XV. AWLS.

Five bone objects have been brought together here, but there are some tools classified under other headings which might perhaps have served similar purposes. The bronze awls and prickers found in the Village are described on p. 225 and figured in Plate XLIII :—

B 149. Awl, broken off at the point, cut from a metatarsus of sheep; present length 98mm.

Found near the palisading, 11ft. E. of the c.p. of Mound VIII, 1894.

B 153. Ulna of sheep,¹ roughly sharpened, which was found protected by a sheath consisting of the lower end and part of the shaft of a humerus of sheep.

Figured in Plate LXIII.

B 173. Short awl (length 75.5mm.), having a sharp point.

Found in the peat outside the palisading, 19½ft. N. of the c.p. of Mound XLVI, 1894.

Figured in Plate LXIII.

B 174. Part of a metatarsus of sheep, the distal end removed; the shaft worked to a point and polished, as if intended for an awl; length 106mm. The proximal end is perforated longitudinally like the metatarsal bones of Type D described on p. 424; the hole is 7mm. in diam.²

Found in Mound XXVI, 9ft. N.N.E. of the c.p., 1894.

Figured in Plate LXIII.

B 186. Awl, roughly worked, length 103mm.

Found in Mound XXVII, 4½ft. S.E. of the c.p., 1895.

1. A similar awl was found in Borness Cave, Kircudbrightshire (*Proc. Soc. Antiq. Scot.*, X, Plate xx, 100).

2. It is possible that this implement might have been used as a lance-head, but the hole for the insertion of a shaft is perhaps not large enough for the purpose, and there is no rivet-hole at the side. Somewhat similar implements, having rivet-holes and with the proximal end trimmed down and bored longitudinally, were found with a human skeleton in association with bronze objects of the Late-Celtic period, on Grimthorpe Wold, near Pocklington, 1868 (*Brit. Mus.*). Two of them are figured in the frontispiece to Mortimer's "Forty Years' Researches in East Yorkshire," and they are described on p. 151 thus :—" That these articles have originally been shafted is proved by two to four pin-holes passing through the socket end of each, and in one the pins remain in position. Possibly these articles were first formed and used as lance-heads." See also *The Reliquary*, IX, 181-2.

Similar implements have been found on Ham Hill, Somerset, Worlebury Camp (Dymond's "Worlebury," 1902, Plate x, fig. 12), Hod Hill (*Brit. Mus.*), Oare rubbish-heap (*Wilts Arch. Mag.*, XXXVI, Plate iii, A), Cross Farm, All Cannings (*ibid.*, XXXVII, Plate i of paper, fig. 10), and Fimber, E. Yorks (Mortimer, Plate lxiv, fig. 493).

XVI. WORKED SPLINTERS.

Besides the splinters of bone found in or near Mound III,—chippings resulting from the manufacture of needles and pins (pp. 68, 410),—several worked splinters chiefly from the shafts of long-bones were collected from some of the dwellings, of which seventeen were specially numbered. Twelve of them have been worked into pointed implements from 56 to 138mm. in length. Of these B 80, 141, 146, 240 and 255, although fairly well shaped, appear to have had little wear; B 123 may be part of the pointed end of one of the tibiae described on pp. 419-421; the others, B 54, 82, 142, 145, 354, 356, are more or less sharp-pointed awls or prickers (B 145 figured in Plate LXIII). The splinter, B 84, is blunt at both ends, but is polished from prolonged use.

The remaining pieces have circular perforations. B 83 shows little sign of wear, but it has a clean cut hole, 3mm. in diam., at one end. B 309 is a tapering splinter, 37.5mm. in length, with a perforation, 2.7mm. in diam., at the wide end, and, although taking the general form of a stumpy needle, the edges are rough and bear little indication of hard wear. B 124 and B 374 are rough splinters each with traces of a perforation now for the most part broken away.

These worked splinters were found in connection with fourteen of the dwellings,—Mounds I, V, VII, VIII, XV, XXXV, XLV, XLVI, LVI, LVIII, LXII, and LXIII, producing one each. Two specimens (B 141, 142) were found in Mound XX, and three (B 82, 83, 84) in Mound LXIV—five being found in the area covered by this dwelling and the adjoining Mounds LXII and LXIII.

XVII. GNAWED BONES.

Although not really coming under the heading of worked bones, some of the bones gnawed by animals and animal bones bearing knife-cuts have been numbered, and are therefore included in this chapter.

Of the bones showing teeth-marks only eleven are numbered (B 19, 23, 46, 60, 61, 62, 128, 138, 140, 452, 453), but several others were found bearing less pronounced evidence of gnawing. Some of the tarsal and carpal bones and tibiae of sheep, also rib-bones, are considerably teeth-marked. B 19, 60, 452 and 453 are illustrated in Fig. 154.

Their distribution in the dwellings is of little importance, but nearly all the numbered specimens were found on the east side of the Village.

XVIII. KNIFE-CUT BONES.

Of the bones bearing distinct knife-cuts twenty-five were numbered. Of these seventeen are ribs (B 45, 47, 85 to 90, 94, 95, 121, 122, 397, 422 to 425), and the

rest small fragments of bone (B 91, 92, 93, 96, 179, 185, 428, 453). Several hundred of pieces of knife-cut and teeth-marked bone were found in addition to those which were numbered. Some of the cuts on these bones are shallow notches, but most of the ribs have narrow and parallel knife-cuts. Other cuts were probably produced by means of heavy implements, such as axes and bill-hooks. None of these cuts and scratches can be regarded as ornament, and they are no doubt for the most part accidental incisions, the result of cutting up flesh for food. B 86, 122 and 454 are illustrated in Fig. 154.

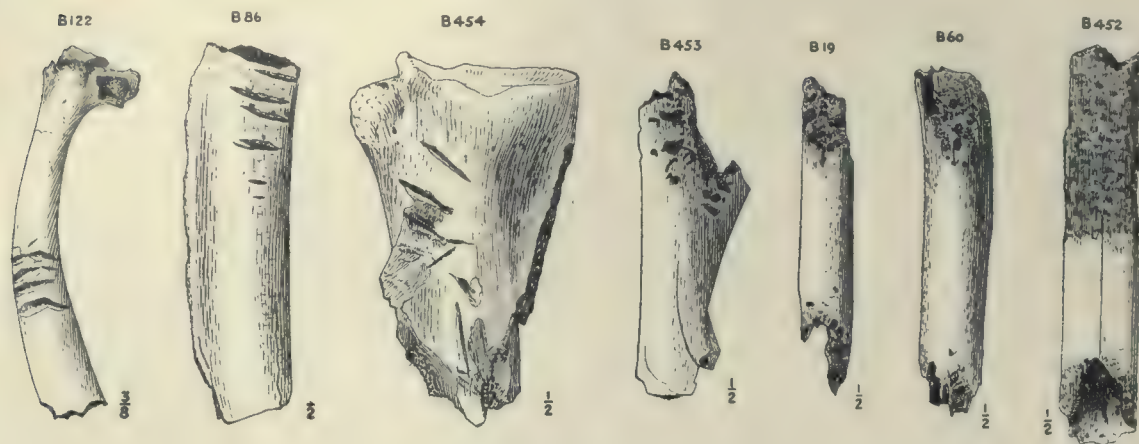


FIG. 154.—KNIFE-CUT AND GNAWED BONES, GLASTONBURY LAKE VILLAGE.
From Drawings by Mr. M. S. Bevan.

Three of these specimens each came from Mounds LXIV and LXXIV, and no less than nine of them were collected from Mound LXV (B 88 to B 96), where, on Floor i, a large number of animal remains were found.

Knife-cut rib-bones and bones gnawed by animals found at Barton, Cambs., have been figured.¹ Others were found among Late-Celtic remains at Solisbury Camp, near Bath (Bath Mus.).

XIX. MISCELLANEOUS WORKED BONES.

The twenty-eight worked bones in this sub-division are divided under four headings, (a) rude pin-shaped fragments, (b) sawn bones, (c) worked bone objects, and (d) worked fragments:—

(a). Of these B 131 is a roughly-made pin, or peg, cut from solid bone, length 110mm.; cross-section quadrangular, averaging 9.5mm. in width; faces smooth, head and point rudely worked. B 79 is a coarse pin, length 100mm., the butt-end being disfigured by transverse knife-cuts (Plate LXIII). B 313 is portion of a large pin of flattened oval section, length

1. *Proc. Camb. Antiq. Soc.*, XII, Plates xxvi, xxvii.

98mm., max. width 10mm. (Plate LXIII). B 266, B 308, B 310, B 321 and B 334, might also be classified as broken, incomplete or damaged pins, or piercers. All the above, with the exception of B 79 from Mound XLIV, were found in the s. of the Village in the area covered by Mounds II, III, IV, VIII and IX.

(b). B 191, B 270 and B 306 are ends of long-bones of ox which have been detached from the shaft by means of a saw. B 157 is a charred tibia of young pig, sawn. B 410 is a calcined piece of bone of oval section, 11 by 9.5mm., showing marks of a fine saw at both ends (max. length 19.5mm.). B 326 is a worked tibia of young ox, having a longitudinal hole 16mm. in diam. at the distal end; the proximal end has been sawn off transversely. B 415 is the greater part of the tibia of a horse, the articular surfaces having been sawn off at both ends. B 307 is a sawn metatarsus of ox, and B 250 a sawn ox's horn-core.

(c). B 247 and B 294 are the shafts of long-bones of large birds, broken, but slightly worked. B 379 is a perforated head of a femur,—perhaps a spindle-whorl. B 401 is a small disc of bone, black from calcination; diam. from 19.9 to 20.4mm.; max. thickness 3.1mm.; in section it is concavo-convex, the concavity being more pronounced than the convexity; its general appearance is peculiar and it is probably a piece of blade-bone (Fig. 148).

(d). B 363 is part of a large radius charred along one side, B 364 a charred pelvic bone, and B 226 a fragment also charred. B 29, B 126, B 370 and B 380, are worked bone fragments.

Of (b), (c) and (d), B 247, B 250, B 306 and B 307, were found in Mound V. The other objects were fairly evenly distributed over the Village area.

CHAPTER XIV.

OBJECTS OF ANTLER.

By H. ST. GEORGE GRAY.

THREE hundred and ninety-six specimens from the Lake-village bear the prefix H=Antler. Included in this number are eighty-one weaving-combs described in Vol. I, pp. 266-299;¹ the large needle of antler, H 24, described with those of bone, p. 412, Fig. 147; the two dice, H 99 and H 248, p. 408, Fig. 146, described with those of bone; the modelling-tool, H 3, Plate LXIV, described with those of bone; and H 211, a *bone* object (p. 429).²

The remaining specimens of antler have been classified as follows:—

	NO. FOUND.
I. Hammers	14
II. Perforated Tines, of the "Cheek-piece" type	45
III. Handles of Knives and other Tools	41
IV. Toggle-like Fasteners	4
V. Ferrules	11
VI. Implements used for Ornamenting Pottery	4
VII. Miscellaneous Objects with artificial Perforations (transverse and longitudinal)	18
VIII. Blocks and lengths of Antler sawn off transversely at both ends	17
IX. Pointed and Socketed Implements (? Goads)	4
X. Tips of Tines	4
XI. Worked Objects of Roe-deer Antler	16
XII. Antlers and parts of Antlers of Roe-deer (some slightly worked)	35
XIII. Worked Tines generally sawn off at the butt-end	43
XIV. Pieces of Antler, sawn and otherwise worked (miscellaneous) .	53
	<hr/>
	309

1. Nearly all the weaving-combs are figured in Vol. I, in Plates xlvi, xlvii, and xlviii. Three, however, appear in this volume,—H 170 and H 291 in Plate lxviii, and H 336 in Plate lxv.

2. Another specimen, H 247, has been mislaid, and is not described in the chapter.

These sections will be described *seriatim*. In the case of the tines and other large pieces of antler, the length on the outer curve has been given unless otherwise stated.

Bones of the roe- and red-deer were infrequently found in the Village, but antlers and tines, shed or taken from slain animals, appear to have been collected extensively for the purposes of making various implements and utensils.

In many cases, no doubt, the polishing of the tips of tines is due to natural causes, and occurred during the life-time of the animals.

A large proportion of the objects are perforated, and a still greater number bear clear indications that the saw was much used in the removal of the tines and in dividing beams of antler into suitable blocks for working into the forms required. Four iron saws of different sizes were found in the Village (the finest, I 53, figured in Plate LX), and the apices of the teeth in all cases are set in an opposite direction to those of the ordinary modern British saw, proving that, as with oriental saws, wood, antler and other materials were sawn by drawing the blade towards the operator. Saw-marks on antler are well seen in many of the specimens, as for example H 237 (Plate LXIV), H 318 (Plate LXV), H 180 and H 239 (Plate LXVII).

I. HAMMERS.

Fourteen specimens have been included under this heading, and as they are of considerable interest and their condition is good, thirteen of them have been figured in Plates LXIV, LXV, and LXVIII.

There is nothing of value to be gleaned from their distribution in the Village. All of them were found in separate dwellings, except in the cases of Mounds V and LXXIV, which produced two each. Four specimens (H 318, H 344, H 351, H 362) were found in the N.W., four (H 4, H 29, H 53, H 141) in the E., and five (H 197, H 208, H 236, H 237, H 238) in the extreme S. of the Village.

The hammer-heads are of an average length of about 4ins., and their girth varies according to the age of the animals from which the antlers were obtained. One has a circumference of 9½ins. just above the burr. All the specimens have been formed from shed antlers of red-deer, and in all cases, with the exception of H 238 and H 362,¹ the burr forms one end of the hammer-head, the other end being represented by the beam, sawn transversely, generally at right angles to the line taken by the antler. This end seldom shows any indications of hard hammering owing to the presence of the cancellous tissue of which half the substance is composed. The burr generally bears indications of hard and prolonged use, its edge being much damaged in the majority of the specimens. The

1. Owing to the soft ends these specimens could hardly have been used for heavy hammering.

long sides of the hammers in many cases bear the marks of knife and saw, and very frequently are considerably pitted and otherwise damaged.

Most of these hammers are perforated with large oblong holes for admitting a handle presumably of wood (of which no remains have been found), but in two cases, H 53 and H 344 (Plates LXIV and LXV) either the brow- or bez-tine has been left to provide a natural handle. In all the other examples the tines have been removed, generally by means of a saw. Sometimes the handle-hole occurs in the position of the stump of a tine which gives additional strength to the implement. H 171 (Plate LXVIII) is an unfinished hammer-head; the burr is perfect and the handle-hole only partly made.¹ H 197 (Plate LXIV) differs from all the other specimens, for although it has no transverse handle-hole it has had a large amount of wear and is considerably pitted (see details on p. 438); at the beam end a longitudinal socket of oval section has been cut deep into the cancellous tissue, and it is probable that a handle was inserted in this position.

Ornamentation is not altogether lacking on these bulky lumps of antler. H 208 (Plate LXIV) is inscribed with concentric circles enclosing a dot, this design being repeated in three places (with traces of a fourth). H 236 (Plate LXIV) is carved in relief round the handle-hole at the top of the hammer, the design being leaf-shaped in plan.

Similar hammers of red-deer antler have occasionally been found in barrows of the Bronze Age, in Wilts, Yorks, Berks, Derbyshire and Westmorland. Several specimens are exhibited in the British Museum; one was found in a barrow near Scarborough;² one with an unburnt body, associated with leaf-shaped flint arrow-heads, at Cowlam, E. R. Yorks;³ and another with an unburnt body in

1. Mr. J. R. Mortimer was of opinion that at least some of the prehistoric hammer-heads were formed and perforated previous to detaching them from antlers, the liability to split in the process of boring being lessened. This does not appear to have been the case with H 171 from the Lake-village. In a barrow in the Huggate Group, Yorks, an antler was found "which is cut and worked with the apparent intention of making a hammer-head from it, as the two brow-tines (*i.e.*, the brow- and bez-tines) are removed and the aperture for the haft has been begun on the two opposite sides." ("Forty Years' Researches in the Burial Mounds of E. Yorks," p. 302, and Plate cxv, fig. 906).

2. *Journ. Brit. Arch. Assoc.*, IV, 105.

3. Greenwell's "British Barrows," 43, 217. This hammer was made from the burr-end of a red-deer antler. "It has been formed out of a shed horn, the brow-tine having been cut off. Through that part of the horn a roughly circular hole, $\frac{3}{4}$ in. in diam., has been pierced to admit the handle, and the horn has been cut off at a distance of 6 ins. from the burr-end. From the marks of the cutting, and the way in which the brow-tine has been removed and the hole pierced through, flint tools appear to have been used in forming the implement; and most of the cuts seem as if made by a flint saw, rather than with a sharp-edged flake, although some few of them may be due to the employment of the last-named implement. The hammer shows signs of having been much used, the part from whence the brow-tine springs and the burr at the same place being worn quite smooth. The other end is also much smoothened at the edges, and has been splintered in four places. It must therefore have been in constant use, for no merely occasional employment could have worn away the burr and the part of the horn near it to the extent described."

a barrow at Crosby Garrett, Westmorland.¹ Two antler hammers in the Greenwell Collection (Brit. Mus.) were found in the Thames,—one at Richmond, the other at Old England, Sion Reach. In the London Museum (Lancaster House) there are several specimens, all of which have been found in the Thames, including Mortlake, Hammersmith, near Battersea Park, and at Eel Pie Island, Twickenham.

A well preserved hammer made of the base of a shed antler was found with a human skeleton in Duggleby Barrow, Yorks ;² and a barrow of the Aldro Group, Yorks, produced another antler hammer.³ A specimen was found on Lambourn Downs, Berks.⁴ One from Collingbourne Ducis has been figured ;⁵ another from Cop Head (or Heap) Hill, Warminster ;⁶ and another in Liffs Low, Derbyshire.⁷

A perforated hammer of red-deer antler was found in Hunsbury Camp, and has been figured.⁸ Another, also with perforation for the insertion of a handle, was discovered in Long Alley, Moorfields, London, 1866.⁹ A similar hammer was found at Goodramgate, York, 1878 (York Mus.).

H 4. Hammer consisting of the burr and base of a shed antler, length 115mm. (4½ins.) ; sawn transversely across the beam. The brow-tine was also sawn off, and in this position the hole for the handle was bored obliquely and parallel to the face of the burr-end. It shows considerable signs of wear especially on the burr, the edge of which has nearly disappeared.

Found 10ft. N.E. of the c.p. of Mound XXII, 1893.

Figured in Plate LXIV.

H 29. Part of a hammer consisting of the burr and base of a shed antler, length 110mm. ; sawn across the beam. The brow- and bez-tines have been removed by means of a saw. The oblong hole for the handle was bored obliquely and parallel to the face of the burr-end. It does not bear evidence of much wear ; a large part of one side of the implement is broken away, and it may have been damaged soon after its manufacture.

Found 12ft. N.E. of the c.p. of Mound XLIV, 1893.

H 53. Hammer of a similar type to H 344 (Plate LXV), the whole of the implement including the handle consisting of part of a large antler. The handle is represented by the bez-tine, the point of which has been removed by means of a saw. One end of the head is represented by the much worn burr and the sawn stump of the brow-tine ; the beam has been sawn across at the other end of the head in line with the handle. Total height of the implement

1. Greenwell's "British Barrows," 390.

2. Mortimer's "Forty Years' Researches in the Burial Mounds of E. Yorks," Plate viii, fig. 63.

3. *Op. cit.*, Plate xviii, fig. 152.

4. *Archæologia*, LXI, Plate ix, fig. 9 ; *Bronze Age Guide*, B.M. (1904), 95.

5. *Archæologia*, XLIII, 438 ; *Wilts Arch. Mag.*, X, p. 96, and Plate iii, fig. 4 ; *Cat. Devizes Mus.*, Plate xii, fig. 1, and pt. 2, p. 15.

6. *Stourhead Coll. Cat.*, Devizes Mus., p. 60, no. 224a ; Hoare's "Ancient Wilts," I, 68.

7. Bateman's "Vestiges, etc.," 42.

8. *Reports, Assoc. Architect. Socs.*, XVIII, Plate ii, fig. 4.

9. *Cat. Guildhall Mus.*, London, Plate iii, fig. 3.

230mm. (9ins.); length of head 110mm. The edge of the burr has been hammered off all round; there are several knife-marks on one side of the head.

Found 10ft. N.W. of the c.p. of Mound XLII, 1893.

Figured in Plate LXIV.

H 141. Hammer formed from the basal part of an immense shed antler, the circumference just above the burr being 233mm. (9½ins.); length of hammer 112mm. Both the brow- and the bez-tines, which came rather close together in this antler, were removed by means of a saw and trimmed afterwards to make the implement more shapely. The handle-hole comes midway between the position of these two tines and is bored almost at right angles to the line of the hammer; at the top the hole is round with an ext. diam. of about 29mm.; at the bottom it is oblong, 24 by 22mm. It is somewhat "pecked" on both sides.

Found on the second floor of Mound XVIII, 11½ft. E. of the c.p., 1895.

Figured in Plate LXIV.

H 171. Base of a large antler, sawn off transversely just above the bez-tine; both this and the brow-tine have been partly sawn and partly broken off close to the base. Marks of the saw are also seen in other places on the antler. The circumference midway between the brow- and bez-tines is 179mm. The object no doubt represents a hammer in an incomplete condition. The transverse perforation for the wooden handle was, for some reason, never completed; on the bottom a circular hole, diam. 12mm., has been bored to a depth of 24mm., but the hole begun at the top (diam. 13mm.), close up to the upper margin of the brow-tine, is not central, and was discontinued after a depth of 4mm. had been reached; it is seen in the illustration.

Found on the second floor of Mound LVII, 7ft. N.N.E. of the c.p., 1896.

Figured in Plate LXVIII.

H 197. Hammer without a transverse handle-hole, and of a different type to the other hammers. It consists of the burr and part of the beam of an antler, the brow-tine having been sawn off; length 101mm. (4ins.). The cancellous tissue at the beam-end appears to have been intentionally removed to about half the length of the implement, and the hole may perhaps have been intended for a socket. The edge of the burr is now barely traceable, and this end is deeply grooved by two incised channels in opposite directions. The sides of the "hammer" are knife-cut in places and considerably "pecked"; there are, moreover, many small holes near the burr which appear to have been bored by means of a rather blunt-pointed awl.

Found among the decayed brushwood, 12ft. from the N. edge of Mound VI, 1896.

Figured in Plate LXIV.

H 208. Hammer, well worked and worn, length about 90mm. The burr-end is somewhat pitted in the middle by hammering, while parts of its surface bear evidence of polishing; the edge of the burr has been broken off in places. The brow-tine was removed and through its stump the handle-hole was cut; this hole is oblong throughout its length, 23 by 14mm. on the top, and 20 by 15mm. at the bottom. The hammer bears various cuts and tool-marks on its surfaces. But the chief point of interest is the ornamentation on one of its sides, consisting of two incised concentric circles enclosing a dot, repeated in three places, with traces of similar ornament in another place also. Two of these dots-and-circles are clean cut; they appear to have been inscribed by means of a centre-bit; their ext. diam. is 12mm.

Found on the second floor of Mound IV, 9ft. N.N.E. of the c.p., 1896.

Figured in Plate LXIV.

H 236. Hammer, finely worked but damaged, length 80mm. This specimen varies from all the others in being carved; the antler has been trimmed and polished more or less all over,

In the position of the brow-tine at the top of the hammer the projecting stump has been symmetrically carved in high relief, the outline of the design being leaf-shaped in plan; the oblong handle-hole penetrates this protuberance, runs parallel to the burr, and measures 18 by 14mm. at the bottom. Little remains of the edge of the burr; the sides of the hammer bear evidence of rough usage.

Found on the level of the second floor of Mound V, 11½ft. w.s.w. of the c.p., 1896.

Figured in Plate LXIV.

H 237. Hammer (length 112mm.) consisting of the burr and basal part of the beam of a large antler, the brow-tine having been removed in the position of the oblong handle-hole (about 27 by 18mm.) which runs parallel to the burr-end. The saw-marks are clearly defined on the top and through the beam. There are indications of much wear and the sides of the hammer, as in so many other examples, is much pitted. Of the edge of the burr little remains.

Found on the level of the lowest floor of Mound V, 10½ft. s.s.e. of the c.p., 1896.

Figured in Plate LXIV.

H 238. Hammer made from a slightly curved beam of antler, no part of the burr occurring; the implement has been sawn at both ends at right angles to its line. The oval handle-hole penetrates the central part of the tine. The hammer, which is 127mm. (5ins.) in length, has not been used much and the sides are not battered in the least.

Found in the peat 17¼ft. w.n.w. of the c.p. of Mound III, 1896.

Figured in Plate LXIV.

H 318. Hammer formed from the basal portion of an antler measuring 208mm. in circumference just above the burr. It bears indications of much use and was found in several pieces. The hole for the reception of the handle is of oblong section, measuring on the lower side 26 by 21mm.; its formation was started by means of a broad saw, and the work was clumsily carried out, deep saw-marks (average width 3.5mm.) extending beyond the margin of the hole to the extent of from 9 to 14mm. The hole at the top is in the position of the sawn-off brow-tine. Both sides are considerably "pecked," caused probably by hammering; on one side there is a depression of conical section, depth 13.5mm., diam. at mouth 17mm.

Found on the first floor of Mound LXXI, 7¾ft. n. of the c.p., 1905.

Figured in Plate LXV.

H 344. Hammer of similar type to H 53 (Plate LXIV), the whole of the implement including the handle consisting of part of a large antler. The handle is represented by the brow-tine which was found broken in many pieces, but has been restored. The base of the bez-tine remains and forms part of the back of the hammer; the beam has been sawn through. The total height of the implement is 220mm. (8½ins.); its circumference midway between the tines is 174mm.

Found on the second floor of Mound LXXIV, 7½ft. e. of the c.p., 1906.

Figured in Plate LXV.

H 351. Hammer made from the base of a large antler, found unbroken; length on the upper ext. curve 145mm. Both the brow- and the bez-tines have been sawn off. The minimum circumference of the antler midway between the deficient tines is 195mm. The transverse hole of oblong section (32 by 21mm.) for the handle runs in a line parallel to the face of the burr. The latter shows much evidence of prolonged use, and the sides of the hammer are "pecked" to a considerable extent.

Found on the surface of the substructure, 10½ft. n.w. of the c.p. of Mound LXXIV, 1906.

Figured in Plate LXV.

H 362. Length of antler of bi-convex section, with a transverse perforation, not quite circular, but averaging 17.5mm. in diam.; perhaps the head of a hammer. Marks of blows are seen on one side; length 74mm.; max. girth 174mm.

Found on the second floor of Mound LXVI, 12½ft. s.w. of the c.p., 1907.

Figured in Plate LXV.

II. CHEEK-PIECES OF HORSES' BRIDLE-BITS, AND OTHER PERFORATED TINES.

These objects, without exception, consist of sawn-off tines of red-deer antler. Although they closely resemble one another, they cannot all be regarded as types of implements used for one purpose. A certain proportion of them are probably the cheek-pieces for horses' bridle-bits, but there can be no doubt that some of these objects were designed for other purposes; many of the specimens bear indications of hard wear and prolonged use. They are figured in Plates LXIV, LXV, and LXVIII.

Points of antler could be applied to various uses with few alterations from the natural form, and it is possible that some of these worked tines served purposes widely different. It is not improbable that a few of them were weaving appliances. In Mound IX for instance five of these objects were found, and it also produced four weaving-combs. Again, Mound XXVII revealed four weaving-combs and four tines (none of which, however, are regarded as cheek-pieces of bridle-bits). Mound XLII, on the other hand, produced only one of these tines and yet yielded no less than nine combs; and Mound XLIX having five combs also contained two tines, H 120 and H 122, which are probably "cheek-pieces." It will, however, be seen that nothing of importance can be deduced from these comparative details.

The forty-five tines below described were found in twenty-six mounds, the largest number being obtained from Mounds IX (five) and XXVII (four), but few of the dwellings produced more than two specimens.

The diagram, Fig. 155, shows the manner in which these tines are perforated—generally with round holes,—but holes of oval and oblong form are sometimes met with, and in one instance the outline is similar to a modern key-hole.

The classification of the tines from the Village is based upon the number and position of the perforations. It is merely tentative, and when the study of these interesting objects is pursued still further, other classifications may perhaps be found preferable.

Taken as a whole the holes are not worn as much as one would expect if all these objects had been used for cheek-pieces for horses' bridle-bits. The specimens having holes much worn are H 284, H 341 (especially the hole nearest the point), and H 200 (the middle hole); the hole nearest the point in H 7 is almost worn

through on the concave surface, and the friction caused perhaps by a thong attached to a bit through the upper perforation in H 97 must have been considerable. On the other hand some of the transverse holes show little or no wear; for this and other reasons several of these tines cannot be regarded as "cheek-pieces."

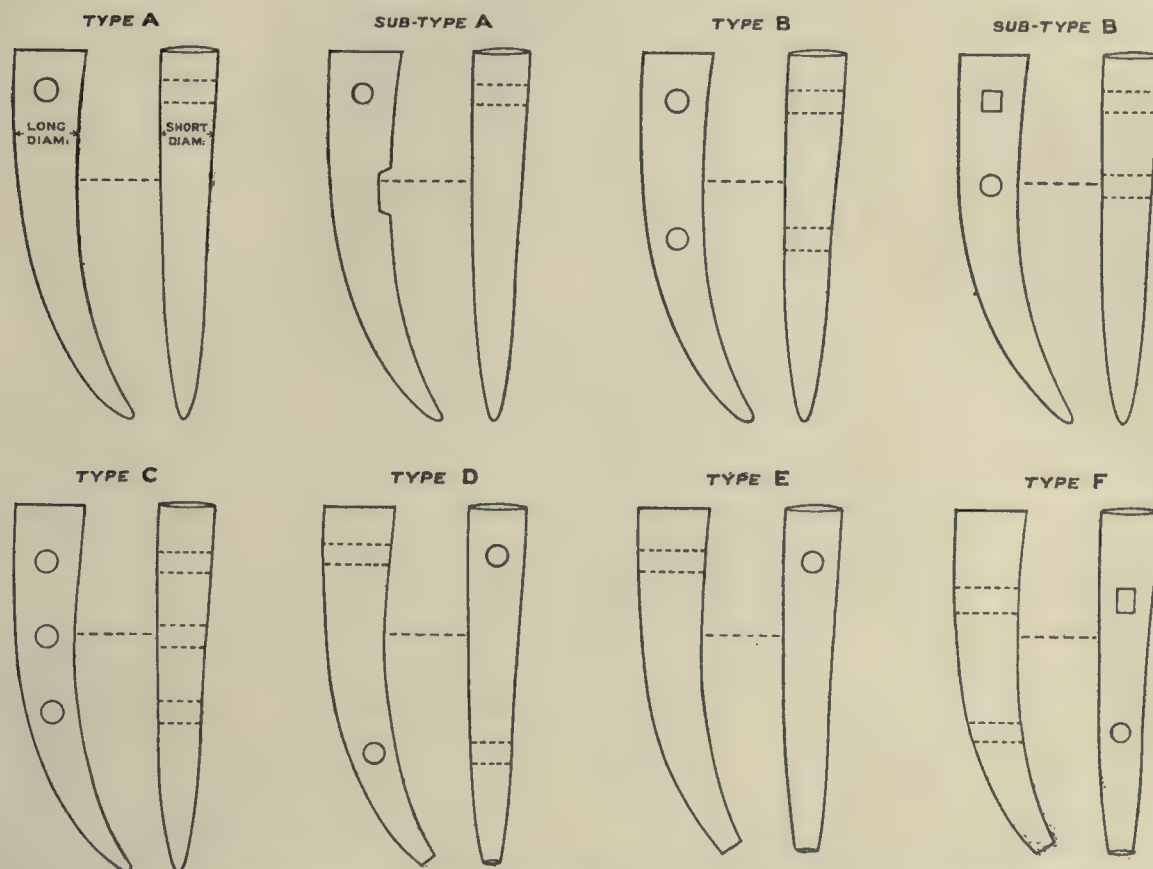


FIG. 155.—DIAGRAM SHOWING THE DIFFERENT TYPES OF PERFORATED TINES OF RED-DEER FOUND IN THE GLASTONBURY LAKE VILLAGE.

(By Mr. H. St. George Gray.)

Of the forty-five specimens it has been found practicable to classify thirty-six, the remainder being fragmentary or of peculiar form. As will be seen by the illustrations (Plates LXIV, LXV, and LXVIII) and the detailed descriptions they vary considerably in length.

The types are as follows, and are shown in Fig. 155:—

Type A.—Four specimens, H 139, 303, 304, 372. The last is badly broken; H 139 is sawn off square at the smaller end; the others are small and burnt.

They have one circular hole through the tine on the short diameter.¹ These were probably not cheek-pieces.

Sub-Type A.—One specimen, H 77, similar to Type A, differs from all the other tines in having a notch on the concave surface (Plate LXIV).

Type B.—Eleven specimens, H 7, 21, 110, 132, 193, 221, 246, 249, 250, 284, 359. These have two rounded holes (not always circular) through the short diameter, at varying distances apart. All of them have the point of the tine remaining, except H 132 which has been slightly reduced at the pointed end (H 249 is broken and cannot be classified in this respect). No examples of this type are ornamented except H 246, and H 7 has a beaded edge. Some of these appear to have been used as cheek-pieces.

Sub-Type B.—One specimen, H 160, similar to Type B, has a four-sided upper hole instead of a round one.

Type C.—Three specimens, H 76, 200, 341. These have three round perforations through the short diameter, at varying distances apart. They differ considerably in length and in other respects. H 200 and H 341 are ornamented with encircling lines and grooves. These two at least may be regarded as cheek-pieces.

Type D.—Four cheek-pieces, H 28, 97, 178, 363. These have two perforations, that nearest the larger end penetrating the long diameter and that near the smaller end the short diameter of the tine. In all cases the tip of the tine has been removed. H 97 (Plate LXIV) has both holes worn, and it differs from all the other specimens from the Village in having the perforation near the smaller end filled by a plug of antler flush with the sides of the tine. Owing to the blocking of this hole, this cheek-piece might perhaps be included with Type E. Three of the specimens, H 28, H 97, and H 178, have a decided flattening either on one or both sides of the upper perforation, which is most marked at the butt-end. This flattening seems to be partly caused by knife-cutting and partly by wear. It is most marked in H 178 (Plate LXIV). H 28 is ornamented only on the worn side (an exceptional feature). H 97 has dots-and-circles in this position, but only on the side which is not cut or worn, and it is regarded as a cheek-piece for the right side of a horse's mouth.

Type E.—Eleven specimens, most, if not all, of which may be regarded as cheek-pieces,—H 18, 96, 120, 122, 153, 189, 210, 226, 287, 299, 360. These have only one perforation, all of which are near the butt-end; they penetrate the long diameter of the tine. The tip of the tine has been removed in all cases,

1. In the description of these worked tines the *short* and the *long* diameters are frequently referred to. Nearly all the tines are of oval cross-section and wider from the convex to the concave margin than in the opposite direction. In order that this may be quite clear, the long and short diameters are diagrammatically indicated in Fig. 155.

except H 189 and H 287. Six of the specimens (H 18, 96, 120, 122, 210, 226) have the flattening either on one or both sides of the perforation, which is (as in Type D) most marked at the butt-end. Constant friction, added to former knife-cutting, has caused this flattening. In two instances, H 18 and H 226¹ (Plate LXIV), this feature also occurs on both sides at the pointed end. Seven of the specimens are ornamented at the larger end (H 18, 96, 122, 210, 226, 287, 360).² The dot-and-circle pattern figures on H 18, H 96, and H 360. H 96 and H 210, like H 97, have the ornament only on the side not cut or worn, and both of them are regarded as cheek-pieces for the left side of a horse's mouth. Sometimes, however, ornamentation occurs on one of the worn sides (as for instance H 18), and sometimes on both. In certain cases some of the ornamentation has partly disappeared owing to friction.

Type F.—One cheek-piece, H 329, having two perforations on the long diameter, that nearest the butt, oblong, the other, round. It is ornamented by a chequer pattern at both ends, on one side only, and it may have been a cheek-piece for the right side of a horse's mouth (Plate LXV).

Of the unclassified specimens, H 219 (Plate LXIV, and p. 452) is undoubtedly the most interesting, and it is much to be regretted that this finely worked and large butt-end of a cheek-piece is so fragmentary. The moulded ornamentation corresponds very closely to that occurring on the complete tine, H 360, figured in Plate LXV.

Very few of the tines have longitudinal holes penetrating the cancellous tissue of the antler from the butt-end. Such specimens as occurred are mentioned in the detailed description of the tines (pp. 451, 453, 454).

We look forward to the time when we may find in Britain complete objects of which these worked tines form integral parts. In the Lake-village no objects have been found associated with these tines which give a clue to the precise manner in which they were used.

A pair of cheek-pieces made of goat's horn were attached to an iron bridle-bit which was found in a grave at Czikó, Tolna, Hungary.³ With an extended skeleton were found in addition to the bridle, the remains of a horse, part of an iron harness buckle, a pair of iron stirrups, iron knives, and fragments. The cheek-pieces were ornamented with bands of incised lines and the dot-and-circle pattern; the hole through the middle was long and narrow. Austrian examples have been described as shuttles.⁴

1. In Plate lxiv, H 226 is marked H 266 by mistake.

2. H 360 is also ornamented and moulded at the smaller end.

3. Hampel, *Alterthümer des frühen Mittelalters in Ungarn*, II, 273; III, Plate 208. Specimens illustrated in Forrer's *Die Pferdetrense*, Plate i.

4. *Mittheilungen der Anthrop. Gesellschaft in Wien*, XXXIV (1904), p. 68, and Plate vii, figs. 1, 2.

Here, it will be appropriate to introduce an extract from Dr. Munro's "Lake-Dwellings of Europe" (pp. 524-526, and fig. 191):—

"That the horse was now domesticated and under the control of the lake-dwellers, we have very circumstantial evidence in the discovery of bridle-bits. . . . For many years some curious and highly polished portions of horn from 4 to 7 ins. in length, and perforated with three or more holes, one in the centre and the other at the extremities, were among the unexplained relics of the Bronze Age stations. The holes in these objects had a worn appearance, and it was noticed that the direction of the central aperture was always at right angles to those at the extremities. Their use, however, remained a complete puzzle till the year 1892, when a remarkably fine and well preserved horse-bit of bronze was discovered at Moeringen.¹ The similarity of these horn objects to the side-pieces of the bronze bit led to the conjecture that they were the analogous parts of horse-bits made of horn. The subsequent discovery of several other bronze bits, all of the same type, gradually strengthened this opinion; but whatever doubt might remain as to their function is now dispelled by the discovery at Corcelettes in 1888, of a complete specimen made of two tines of staghorn with a transverse mouthpiece of bone (which is only 2½ ins. wide) . . .

"Judging from the frequency with which the isolated side-pieces of bridle-bits made of horn have been found on almost all the bronze stations . . . the horse must have been common among the lake-dwellers. It will also be remembered that similar objects have been found in the *terremare*, and Dr. Carlo Boni thinks that a piece of rope was used instead of the stiff mouth-piece."

It should be stated that none of the objects under consideration from the Lake-village correspond in details to the side-pieces mentioned above by Dr. Munro; all that can be said is that there is some resemblance. Those from the Swiss Lakes are "perforated with three or more holes" which probably made them the more serviceable for the purposes described, but from Glastonbury only three of the specimens are pierced with three holes each (Type C), all the rest being provided with either one or two apertures. Of course the method of attachment may have been different, and perhaps fewer holes were required in the later period.

Among the interesting series of Bronze Age antiquities found in Heathery Burn Cave, co. Durham, several implements made from tines and beams of red-deer antler were found. The following is Canon Greenwell's description of them:—

"Five of them are perforated by three holes, of which the middle one is larger than those at the ends, and pierces the horn in a direction at right angles to them. They occur in both a curved and a straight form. In one of the curved examples, which is 4½ ins. long, the hole at the broader end does not quite perforate the piece of horn. A straight one, which is 4¾ ins. long, has an oblong perforation at the middle, those at the ends being round. . . . The curved ones, made from tines, are smaller at one end than at the other, while those which are straight are made from a piece of beam of an antler and are of equal size throughout. . . . A curved one, very like those from the cave, found in the Thames, is in the collection of Mr. Thomas Layton, F.S.A., of Kew Bridge. Precisely similar articles . . . have been discovered on the

1. In the British Museum there is a pair of worked and perforated antler tines, of rather elaborate design, which were found at this station; they are 5 and 5½ ins. respectively in length.

site of lake-dwellings of the Bronze Age in Switzerland.¹ They are regarded by Swiss archæologists as the cheek-pieces of bridle-bits, many of which, made of bronze, but of a quite different shape, have been met with on the same lake-dwelling sites. They do not, however, appear to be suitable for that purpose, nor do the holes show the kind of wear which might be expected had they been used in that connection. I cannot suggest any other explanation, unless they were employed in the operation of weaving, though in what way I am ignorant. The same idea has suggested itself to others and among them to practical weavers, but, like myself, they could not say in what way they had been used."² These objects are in the Greenwell Collection (Brit. Mus.).

These worked tines represent a fairly large proportion of the objects of antler found in the Lake-village, and about the same proportion obtains among the antler relics found in Wookey Hole. Types A, C and E, and sub-Type A are not represented at Wookey, but the cavern has produced four examples of Type B, one of Type D, and two of Type F (as far as can be ascertained from Mr. Balch's book);³ also one similar to sub-Type B, having a square hole at the butt-end, but no second hole.

Up to the present time very few "cheek-pieces" have been found in the Meare Lake-village, but one having two perforations close together through the long diameter is of interest, although damaged to some extent. It has the flattening on the sides between the butt-end and the holes, and is ornamented in this position with dots-and-circles and engraved lines on one side of the tine only; the butt also has punched ornament encircling the flat end. The cancellous tissue has been removed and a bronze pin inserted, which reaches to the margin of the upper transverse perforation. Between the butt-end and the nearest hole another slender bronze pin penetrates the thickness of the tine at right angles to the line of the two perforations. We shall hope some day to find further connecting-links which will explain the precise method adopted for the use of these well worn implements.

One specimen of Type E comes from "Ham Turn," on the w. side of Ham Hill, S. Somerset, 1905 (Taunton Mus.).⁴ A socket appears to have been formed at the butt-end by the removal of some of the cancellous tissue; the other end is pierced longitudinally by a small circular hole and is ornamented by a single encircling bead. It is worn in the manner described in the next paragraph.

Another Somerset example, also of Type E, here figured (Fig. 156), was found near

1. Explained in *Revue Archéologique*, 3 ser., Vol. XI (1888), 52-60, "Mors de Bronze de Moeringen."

2. *Archæologia*, LIV, 108-109.

3. Balch's "Wookey Hole" (1914), Plate xxvi, A, nos. 12-14, 16-20, 22, and p. 117. Nos. 11 and 15 may have been similar objects in process of formation. Some of these objects are also figured in *Archæologia*, LXII, 583, and Plate lxxviii, 2, 5, 6; LXIV, 344.

4. *Proc. Som. Arch. Soc.*, LI, i, 88.

the surface of the floor of Gough's Cavern at Cheddar, and is in the little museum at the cave. Its length on the outer curve is 111mm. ($4\frac{3}{8}$ ins.); maximum width at the larger end 24mm.; diameter of perforation 8mm. The convex surface is considerably worn on each side at both ends; this flattening is shown by the dark shading in the drawing. Precisely the same kind of flattening caused by

constant rubbing is seen on the Lake-village specimens already described; also on the Ham Hill specimen and one from Wookey Hole.¹

The ornamentation of the Cheddar specimen (Fig. 156) should be compared with the band of lattice pattern seen on H 210 (Plate LXIV) from the Lake-village, on a similar object from the Charioteer's Barrow, Arras,² and on a worked tine from Hod Hill (Brit. Mus.). This style of decoration is one of the commonest occurring on the Lake-village pottery.

Another "cheek-piece" of Type B was found in the small cave close to the mouth of Gough's Cavern, Cheddar, 1910. It has two circular holes, about $1\frac{1}{2}$ ins. apart through the short diameter of the tine. The convex surface is extremely smooth, and has midway between

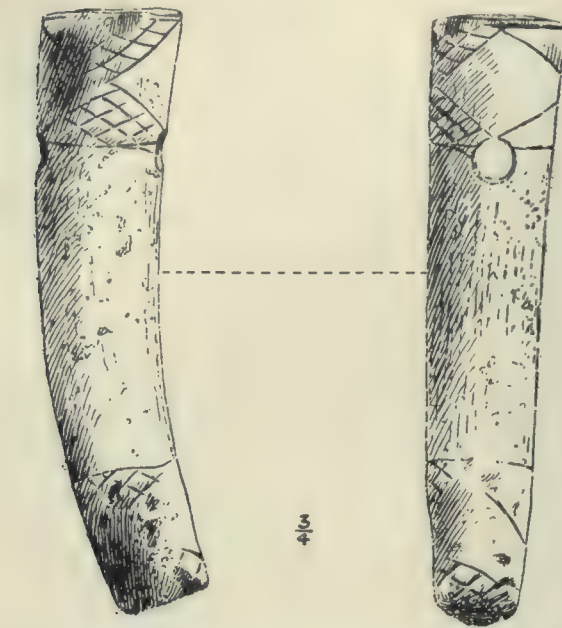


FIG. 156.—"CHEEK-PIECE" OF A HORSE'S BRIDLE-BIT, FOUND IN GOUGH'S CAVERN, CHEDDAR.

From a Drawing by Mr. E. Sprankling.

the larger holes a small perforation penetrating the tine; a somewhat similar feature occurs in H 162 from the Village (p. 451).

The piece of carved antler ornamented with the dot-and-circle pattern found in Worlebury Camp may possibly be part of a cheek-piece, but is more probably part of a knife-handle. "Mr. Warre thought it was a musical instrument." It is figured in Dymond's "Worlebury" (1902), Plate x, fig. 8. Five cheek-pieces found in the Lake-village (H 18, 96, 97, 153, 360) are ornamented with dots-and-circles.³

Several of these objects (about eight) were found at Hunsbury Camp

1. Balch's "Wookey Hole," p. 117, fig. 18.
2. Canon Greenwell's "Iron Age Burials in Yorkshire," *Archæologia*, LX, 283; *E.I.A. Guide*, B.M., 106.
3. A tine of the Bronze Age found at Vallamand, Lake of Morat, has a perforation at the butt-end and is richly ornamented with dots-and-circles (*L.D. of E.*, p. 72, fig. 14, no. 20).

(Northampton Mus.),¹ of which the writer has no precise details. Two of them are ornamented with the dot-and-circle pattern.²

An object of red-deer antler found in Harborough Cave, near Brassington,³ probably served as a cheek-piece of a horse's bridle-bit. It differs somewhat in type from those found in the Lake-village. There are two round perforations close together through the short diameter. It is ornamented on one face only with a series of transverse grooves close to the larger hole. On this side this hole is a little worn towards the concave side and on the back towards the convex curve. Mr. Reginald A. Smith, F.S.A., remarks that "the friction of a thong through the hole attached to the bit would have this effect."

The specimen already mentioned as having been found in the "Charioteer's Barrow" is 5ins. long, and at a distance of $\frac{7}{8}$ in. from the butt-end it has a quadrangular perforation which passes through from back to front (like the specimen from Wookey Hole mentioned on p. 445). The Arras specimen is exhibited in York Museum; a second example appears also to have been found. With the "find" was a bronze case of peculiar form, perforated to correspond with the tine; it has been fully described,⁴ but its use is unknown.

Several implements of a somewhat similar kind were found associated with objects of the Early Iron Age in Thor's Cave, half-a-mile from Wetton, on the banks of the Manifold River, Staffordshire (Derby Mus.).⁵ They have a hole perforating the antler straight through, about a third of the length from the pointed end. At the butt-end the tines are bored longitudinally, and this hole is met by a side-hole in the form of a deep notch, from which, at the time of their discovery, it was thought that the objects might be whistles.

A tine broken across a perforation, which may be of the kind described in this section, was found in the Settle Caves, Yorks (Brit. Mus.). Jewitt in "Grave Mounds," p. 127, figures an object of this class.

In the London Museum (Hilton Price Coll.) there is a cut tine of red-deer antler found at London Wall which has a single perforation through the short diameter towards the point and four or five holes round the butt-end. A finely polished and perforated tine was found in the Thames at Hammersmith (Brit. Mus.).

In the Silchester Collection (Reading Mus.) there are some cut tines with single perforations; the catalogue describes them as being "perhaps used in rope-making." The same collection contains a cut tine having an oblong aperture

1. Two of the Hunsbury specimens are in the British Museum.

2. *Reports, Assoc. Architect. Socs.*, XVIII, Plate ii, figs. 8-11, and p. 57.

3. *Proc. Soc. Antiq. Lond.*, XXII, 136; *Journ. Derbysh. Arch. Soc.*, XXXI, 101, and illustration.

4. *Archæologia*, LX, 283; *E.I.A. Guide*, B.M., 106.

5. *Trans. Midland Scientific Assoc.*, Winter Session, 1864-5, pp. 1-19, Plates iv, v. They are also figured in *The Reliquary*, Vol. VI (1865-6), p. 209. See also *Journ. Derbysh. Arch. Soc.*, IV, 165.

straight through near the butt-end, and a small circular hole in about the same position but at right angles to the larger perforation ; it is described as part of a netting-needle.

Two perforated objects of antler (not of the typical "cheek-piece" form), one ornamented at both ends by the lattice or trellis pattern (p. 446), the other with dots-and-circles, found at Wroxeter are described thus :—"These are sometimes stated to be cheek-pieces of bridle-bits, but it seems more probable that they were somewhat similar to a toggle, and were used as handy fasteners for straps or ropes, perhaps in connection with the bucket of a well."¹

In the Stourhead Collection there is a tine of Type E, cut off at both ends, length $4\frac{3}{8}$ ins. ; locality unknown. It has a "narrow channel cut down the inner side, decorated with zigzag lines, etc., round the larger end."²

The finely decorated tine of antler found on the Hill of Fortrie, near Ellon, Aberdeenshire, appears from the illustration to be of this class. It has two circular holes (Type B) on one surface, but the other view does not show that the holes penetrate right through the tine.³

In the Greenwell Collection (Brit. Mus.) there is an elaborate and well worn specimen of the so-called "cheek-piece" found in the Thames at Hammersmith. It is perforated near the middle through the short diameter by a large oblong aperture, on either side of which there are two circular holes penetrating the tine in the same direction. Passing through the thickness of the concave surface only there are two large oblong holes at the same level as the two pairs of circular holes previously mentioned and at right angles to them. This specimen has not been hollowed out at the butt-end nor between the central oblong aperture and the pointed end, but the rest is tubular. In 1914 a similar implement, also of antler, was found by Mr. A. V. Cornish on Ham Hill (Taunton Mus.). It differs from the Hammersmith example in having a group of three (instead of two) circular holes at the larger end ; and it appears to be tubular throughout its length, except from the pointed end to the nearest oblong aperture.⁴ Another having similar perforations to the Ham Hill specimen, but with rather smaller circular holes, was found in the Thames at Sion Reach. The nearest of the three circular perforations to the middle of the object is said to contain an original wooden peg (London Mus., Lancaster House).

1. "Excavations on the Site of the Roman Town at Wroxeter, 1912," Plate xi, figs. 25, 26.

2. *Cat. Devizes Mus.*, 1896, no. 231, p. 61.

3. *Proc. Soc. Antiq. Scot.*, IX, Plate xxxvi, and p. 547.

4. *Proc. Som. Arch. Soc.*, LX, i, 94.



HAMMERS AND "CHEEK-PIECES" OF ANTLER, GLASTONBURY LAKE VILLAGE.

From Photographs by Mr. H. St. George Gray.

DETAILED DESCRIPTION OF THE "CHEEK-PIECES" FOUND IN THE LAKE VILLAGE.

H 7. Point of a worked tine, length 94mm., highly polished all over the surface; the butt-end is solid and has been cut off square; below it there is an encircling groove forming a bead. This so-called "cheek-piece" is pierced transversely by two round holes, the centres 18mm. apart, on the short diameter of the tine, and belongs to Type B. The lower and larger hole is much nearer the concave than the convex margin of the tine, and it is considerably worn near the concave margin.

Found among the palisading, 27ft. E.S.E. of the c.p. of Mound XXIII, 1893.

Figured in Plate LXIV.

H 15. Part of a tine, much weathered, showing traces of two perforations, both of which are broken.

Found in Mound XXIII, 1ft. N.W. of the c.p., 1893.

H 18. Perforated tine of Type E, with one circular hole near the squared butt piercing the tine through its long diameter. It is well worn and smooth, length 110mm. On either side of the hole and near the butt-end on the convex margin of the tine, the surface has been flattened partly by means of a knife, partly by wear. The corresponding surfaces at the pointed end have also been reduced, like H 226. One side at the butt-end is ornamented by four dots enclosed by circles.

Found in Mound XLIV, 4½ft. E.S.E. of the c.p., 1893.

Figured in Plate LXIV.

H 21. Worked point of a small tine of Type B, somewhat weathered, length 84mm., pierced by two round holes in the same direction and on the short diameter. There appears to have been a beaded edge at the butt-end.

Found in Mound XLIV, 6½ft. N. of the c.p., 1893.

H 28. Worked tine with two holes in opposite directions, of Type D, length 129mm. The tine is smooth and covered with tool-marks. One hole (diam. 6mm.) is near the squared butt; the other (diam. 4mm.) near the pointed end (the tip of which has been removed). This specimen, like H 18 and several others, has the surface flattened and much worn at the butt-end on both sides of the adjacent hole and on the convex surface of the tine. This end is ornamented by transverse incised lines on one half of the tine only.

Found in Mound XXV, 10½ft. N.W. of the c.p., 1893.

Figured in Plate LXIV.

H 76. Worked tine, somewhat weathered, length 165mm., having three holes on the short diameter, and like H 200 and H 341 belonging to Type C. The upper hole is near the broken butt-end; the two other holes, 20.5mm. apart, are nearer the point of the tine.

Found in the peat, 28½ft. S.S.W. of the c.p. of Mound LXIII, 1892.

Figured in Plate LXIV.

H 77. Worked tine, polished from butt to point, length 116mm. It is classified as sub-Type A, for not only has it got a circular perforation near the butt-end, but also a notch (13mm. long, and 5mm. deep) on the concave margin of the tine, a little nearer the butt than the point.

Found in Mound LXIII, 13ft. N. of the c.p., 1892.

Figured in Plate LXIV.

H 88. Fragment of a small polished tine, much calcined, with traces of one perforation remaining, and apparently similar to the burnt tines, H 303 and H 304, figured in *Proc. Som. Arch. Soc.*, LI, ii, Plate v.

Found 18ft. N.W. of the c.p. of Mound LXII, 1892.

H 96. Worked tine, sawn off square at both ends, length 105mm.; the surface more or less polished all over. The hole is bored transversely on the line of the long diameter, and therefore belongs to Type E. Between the hole and the butt-end this specimen, like several of the others, has been flattened by means of a knife,—the flattening being much more pronounced on one side than the other. In this position on one face two inscribed dots-and-circles have been added as ornament.

Found in Mound XX, 8ft. s.w. of the c.p., 1894.

Figured in Plate LXIV.

H 97. This implement, although belonging to Type D, is similar in some respects to H 96. The tine is sawn square at both ends, its length being 105mm. The hole near the larger end, which is worn, extends from the convex to the concave surface of the tine; the other hole, near the smaller end, perforates the tine in an opposite direction and differs from all the other specimens in being filled by a plug of antler which is practically flush with the sides of the tine. Between the upper hole and the burr there is a decided flattening on one side only, the other side being ornamented by three dots-and-circles triangularly arranged.

Found in Mound XX, 9½ft. s.s.w. of the c.p., 1894.

Figured in Plate LXIV.

H 110. Worked tine, polished more at the point than elsewhere; sawn square at the butt-end; length 93mm. This specimen is of Type B, having two perforations in the same direction on the short diameter of the tine; the hole near the butt-end is the larger of the two.

Found 16ft. s.w. of the c.p. of Mound XLII, 1894.

Figured in Plate LXIV.

H 120. Worked tine, length 91mm., the point broken away; at this end there is no trace of a perforation; the hole near the butt-end penetrates the long diameter of the tine, and it has been included under Type E. On the convex margin and at the butt-end considerable flattening occurs on either side of the hole. The flattened surfaces appear firstly to have been cut and then polished by hard wear.

Found 15ft. E. of the c.p. of Mound XLIX, 1894.

Figured in Plate LXIV.

H 122. This tine is of Type E, and similar to H 120. It has been cut square at both ends, and although somewhat weathered bears traces of considerable wear and polish; length, 131mm. The circular hole is large, but shows little indication of wear at the edges. The flattened surfaces on either side of the hole at the butt-end are later than the first formation of the object, for they have partly defaced the band of lattice pattern which encircles the tine.

Found 20ft. s.e. of the c.p. of Mound XLIX, 1894.

Figured in Plate LXIV.

H 132. Worked tine, sawn square at both ends, and more polished at the smaller than the larger end; length 123mm. It is of Type B, the two holes piercing the short diameter of the tine in the same direction.

Found in Mound XXVII, 8ft. E.N.E. of the c.p., 1895.

Figured in Plate LXIV.

H 139. Stout length of tine, length 100mm., sawn square at both ends, the natural roughness of the surface remaining to some extent. The single perforation near the butt-end is large and penetrates the short diameter of the tine (Type A).

Found on the first floor of Mound XXVII, 6½ft. s. of the c.p., 1895.

H 144. This tine is nearly straight with a slight ogee curve; length 119mm. Although it has two perforations in the same direction it cannot be classified with the others with cer-

tainty. The butt-end is comparatively small in diameter and appears to have been cut by means of a knife.

Found in Mound XXVII, 10½ft. N. of the c.p., 1895.

Figured in Plate LXIV.

H 153. Fragmentary piece of a worked tine, calcined to a bluish-grey colour. It is highly polished and much worn. One hole remains and it has been included under Type E, but there is no evidence that the complete object did not have another hole. Two encircling grooves are seen at the butt-end and a series of four in proximity to the perforation. Two double circles enclosing a dot remain as ornament.

Found in Mound XXVII, 12½ft. W. of the c.p., 1895.

Figured in Plate LXIV.

H 160. This tine is in poor condition and has been classified alone under sub-Type B. It is polished but not ornamented. There is a central circular perforation on the short diameter (now damaged). Near the butt-end there is another hole in the same direction of roughly square outline.

Found in Mound XVIII, 5¼ft. N.W. of the c.p., 1895.

H 162. This tine is almost straight with a slight ogee curve, length 117mm. It is well polished and has the natural point uncut. From the butt-end one side has been cut lengthwise and somewhat obliquely along half the length of the tine, as seen in the illustration. The two perforations pierce the tine in the same direction. In the opposite direction and midway between these apertures is a small hole (diam. 3mm.) sunk to a depth of about 3mm. This specimen has not been classified as nothing precisely similar has been found in the Village. The small hole in the Cheddar specimen described on p. 446, pierces the tine right through.

Found on the fourth floor of Mound XVIII, 8¼ft. S.S.W. of the c.p., 1895.

Figured in Plate LXIV.

H 178. Cut tine of Type D, with two perforations in opposite directions, like H 28, H 97 and H 363; length 109mm. The holes are worn and that nearest the point is best described as of oval outline. A short piece of the point has been removed. Owing to the large amount of flattening on either side of the upper hole the butt-end is perhaps more reduced in thickness than in any other specimen from the Village. On one side this flatness extends to half-way between the two perforations.

Found in the peat 17½ft. W. of the c.p. of Mound X, 1896.

Figured in Plate LXIV.

H 189. Polished tine, length 126mm., the pointed end complete, sawn off at the butt-end where the edges are worn and smooth. It belongs to Type E, and is perforated with one hole, of oval form, on the line of the long diameter. A longitudinal hole through the cancellous tissue connects the transverse perforation with the butt-end.

Found on the ninth floor of Mound IX, 7¼ft. N. of the c.p., 1896.

Figured in Plate LXIV.

H 191. Fragment of a tine showing part of a perforation at both the broken ends; unclassified.

Found on the second floor of Mound IX, 9¼ft. N.N.W. of the c.p., 1896.

H 193. Stout tine of almost circular section, roughly sawn through at the butt-end, length 155mm.; in the upper part the rough external surface has not been removed, but the point is polished smooth. It belongs to Type B, having two large circular perforations. Between these apertures on one side of the tine is a small, shallow circular indentation, and on the convex surface close to the butt-end a transverse saw-mark.

Found on the second or third floor of Mound IX, 15ft. E. of the c.p., 1896.

Figured in Plate LXIV.

H 200. Polished tine of Type C, having three perforations on the line of the short diameter, the outer ones circular, the middle hole oval. These apertures show some signs of wear. The edges of the squared butt-end are worn and smooth. At the other end there is a rounded terminal, and above it three wide encircling grooves; this ornamentation is of a kind not seen on any of the other "cheek-pieces"; it covers 35mm. of the total length of the tine, which is 120mm.

Found in the foundation of the fourth floor (but on a level with the fifth or sixth floor), 10ft. s.w. of the c.p. of Mound IX, 1896.

Figured in Plate LXIV.

H 207. The smaller end of a cheek-piece having the flattening on both sides as in H 18 and H 226. The surface is well polished and the specimen bears evidence of fire.

Found on the first floor of Mound IV, 12½ft. N.W. of c.p., 1896.

H 210. Greater part of a "cheek-piece," mended from several fragments, length 95mm. The fact that the tine is now tubular appears to be the result of decay. This specimen is of Type E, having a single perforation on the long diameter. Like several others of this class it has the flattening in the usual position between the perforation and the butt-end. Here it is ornamented on one surface by an incised trellis pattern (see p. 446).

Found on the second floor of Mound IV, 9ft. N. of the c.p., 1896.

Figured in Plate LXIV.

H 219. Fragment of a large tine, perhaps the butt-end of a "cheek-piece," finely worked and moulded like the complete specimen H 360 (Plate LXV). It is of oval section measuring 35.5 by 31.5mm. at the squared butt-end. On one side it is considerably weathered; it has been fractured across a circular perforation at 32mm. from the butt. The encircling ornamentation consists of two wide mouldings in relief with a deep groove between them; the mouldings are beaded on the margins of the groove. The lower moulding is covered with an incised lattice pattern.

Found on the second floor of Mound V, 10ft. N.W. of the c.p., 1896.

Figured in Plate LXIV.

H 221. Worked tine, length 162mm., having a much weathered surface. It is of Type B, having two perforations in the same direction on the line of the short diameter. They vary from the average circular hole, these being elongated and in the form of a modern key-hole. The upper perforation is connected with the butt-end by a small tubular hole through the cancellous tissue.

Found on the first floor of Mound V, 12ft. E.N.E. of the c.p., 1896.

Figured in Plate LXIV.

H 226. This polished tine is perhaps more cut and shaped than any of the other specimens here described. It is 115mm. in length, and has been sawn off square at both ends. It has the usual transverse perforation on the long diameter and near the butt-end, as in other specimens of Type E. The flattening on both sides between the hole and the butt is very marked; the same feature is displayed at the smaller end of the tine and in this respect it bears a strong similarity to H 18 and to a specimen found in Wookey Hole.¹ These flattened surfaces were in the first place probably cut with a knife and afterwards became polished by hard wear. The ornamentation consists of two small encircling grooves at both ends, the greater part of which has been defaced by the subsequent flattening of the tine.

1. Balch's "Wookey Hole" (1914), p. 117, fig. 18.

Found on the first floor of Mound IV, $4\frac{1}{2}$ ft. s.w. of the c.p., 1896.

Figured in Plate LXIV (where, by an oversight, it is marked H 266).

H 246. Highly polished but broken tine, the point of which has a double moulding much worn by constant friction. A part of the butt-end is deficient, but sufficient remains to show that it had two transverse perforations on the short diameter and is therefore classified under Type B. Just above the hole at the larger end is a plain narrow moulding which encircles the tine.

Found close to the surface of Mound III, $8\frac{1}{4}$ ft. N.E. of the c.p., 1897.

Figured in Plate LXIV.

H 249. Part of a small polished tine, length 57mm., sawn off square at the butt-end. It has two oval perforations, and is of Type B.

Found in Mound II, $11\frac{3}{4}$ ft. w.s.w. of the c.p., 1897.

Figured in Plate LXIV.

H 250. Small polished tine having a deep curve at the pointed end, length 118mm.; the butt-end has been roughly sawn. It is of Type B, having two perforations through the short diameter of the tine.

Found in Mound II, 12ft. s.w. of the c.p., 1897.

Figured in Plate LXIV.

H 256. Part of a polished tine, length 50mm., with a beaded butt-end. It is broken across a large oval hole on the long diameter; at this point the tine is 12mm. in min. diam., the hole being 8mm. wide.

Found $17\frac{3}{4}$ ft. E.N.E. of the c.p. of Mound VI, 1897.

H 284. Part of a worked tine, length 90mm., and measuring 25 by 16mm. at the squared butt-end; the other end was found in a fractured condition, but has been repaired. It is classified under Type B, having two round perforations, averaging 9mm. in diam., on the short diameter of the tine.

Found on the second floor of Mound LVII, $5\frac{1}{2}$ ft. w.s.w. of the c.p., 1904.

Figured in Plate LXVIII.

This specimen is in the Taunton Castle Museum.

H 287. Worked tine of Type E, length 110mm., with one circular hole (diam. 11mm.) at a distance of 68mm. from the pointed end; encircling the squared butt are two grooves or mouldings.

Found on the first floor of Mound LXXVIII, 12ft. w.N.W. of the c.p., 1904.

Figured in Plate LXVIII.

This specimen is in the British Museum.

H 298. Portion of a roughly cut but very smooth antler, with a large transverse hole 7.5mm. in diam.

Found on the first floor of Mound LXIX, $4\frac{1}{2}$ ft. w. of the c.p., 1905.

This specimen is in the British Museum.

H 299. Worked tine, length 129mm., probably not connected with harness, but classified under Type E; the tine is cut square at both ends and the cancellous tissue has been removed apparently to make the implement tubular throughout. The single perforation (diam. 6mm.) is on the line of the long diameter, its centre being at a distance of 6mm. from the butt-end. Between the hole and top a short deep transverse notch has been sawn on one side.

Found on the first floor of Mound LXIX, $9\frac{1}{2}$ ft. s.w. of the c.p., 1905.

Figured in *Proc. Som. Arch. Soc.*, LI, ii, Plate v.

This specimen is in the Taunton Castle Museum.

H 303, 304. Two points of tines, whitened and shrunk by calcination; of Type A, having one large circular hole on the line of the short diameter and near the squared butt-end; the antler has been somewhat flattened on both sides in the position of the hole. Between the butt-end and the hole there are two parallel incised lines as ornament. H 303 is 73mm. in length; H 304, 81mm.

Found with many calcined objects (p. 155) under the clay of Mound LXX, about 8ft. N. of the c.p., 1905.

Both figured in *Proc. Som. Arch. Soc.*, LI, ii, Plate v.

H 303 is in the British Museum; H 304 in the Taunton Museum.

H 329. Worked tine, length 108mm., much weathered and considerably repaired. It is the only representative of Type F, having two holes penetrating the tine from the convex to the concave surface. One hole is oblong, that nearest the point circular. It is ornamented on one side only (that shown in the illustration), by a square trellis pattern at both ends of the tine.

Found under the clay of Mound LXXI, 18ft. S.S.W. of the c.p., 1905.

Figured in Plate LXV.

H 341. Worked tine of Type C, length 77mm., exceedingly smooth from prolonged use. It is perforated with three round holes, the centre of the two nearest the larger end being 12mm. apart, the middle one and that nearest the point being divided by a greater distance, viz., 16.5mm. The hole nearest the point is rather larger, and is not so round as the others being more worn at the edges. Between the squared butt and the adjacent hole the tine is ornamented by three encircling grooves, much worn down by constant friction. The object is now complete, but has been repaired.

Found in trenching in the black earth, 21ft. N.W. of the c.p. of Mound LXXIV, 1906.

Figured in Plate LXV.

H 359. Worked tine of Type B, length 113mm., in rather fragile condition. It is perforated with two round holes, the broken one near the butt-end being about 6mm. in diam., the larger hole (9 by 8mm.) being 35mm. from the tip of the tine.

Found under the clay of Mound LXXIII, 35ft. S.E. of the c.p., 1907.

Figured in Plate LXV.

H 360. Finely-worked tine, squared at both ends, length 118mm. It has one circular perforation (diam. 6.7mm.) which penetrates the tine from the concave to the convex side. This specimen has finely moulded ends of a kind only surpassed by the butt-end of a similar and larger object found in the Village (H 219, Plate LXIV). Both the moulded ends consist of two ridges (ornamented with encircling incised lines) with a groove between. The moulding at the larger end is 15.5mm. wide, at the smaller end 10mm. On the body of the tine on one face only and near the moulding at either end is an incised dot-and-circle. The cancellous tissue at the butt-end is bored as far as the transverse hole.

Found on the second floor of Mound LXVI, 3ft. N.N.E. of the c.p., 1907.

Figured in Plate LXV.

H 363. Worked tine, length 101mm., smooth at the pointed end, somewhat enlarged at the butt-end where the tine has been cut off square. The perforation (diam. 5mm.) nearest the larger end has been bored on the line of the long diameter; at 26.5mm. from the pointed end there is a perforation in an opposite direction (max. diam. 7mm.). It therefore belongs to Type D.

Found on the fourth floor of Mound LXXV, 2ft. S.E. of the c.p., 1907.

Figured in Plate LXV.

H 372. Part of a tine in three fragments having one perforation on the short diameter (Type A); ornamented by encircling incised lines which are very uneven.

Found, deep, on the S.E. side of Mound IX.

III. HANDLES OF KNIVES AND OTHER TOOLS.

Forty-one of the objects of antler have been brought together under this heading, and there has been little or no difficulty in dividing those of roe-deer antler from those of red-deer—eight of the former, thirty-three of the latter. All the handles of roe-deer antler (A, see below) have longitudinal slits presumably for the insertion of the tangs of cutting-tools, but no transverse holes for rivet attachments. H 79, 168, and 209 are figured in Plate LXVI, and H 348 in Plate LXV. There are ten handles of the same description, of red-deer antler (B), of which H 98, 124, 143, 167, 216, and 278, are figured in Plate LXVI. The third section below (C) describes five handles of red-deer antler, with iron tangs still remaining in position in the slits, secured by one or two iron rivets. All these (H 37, 129, 220, 354, and 395) have been illustrated (see Plates LXV and LXVI). The fourth section (D) brings together handles of red-deer antler without slits or rivet-holes,¹ but these have longitudinal holes for the insertion of the tangs of knives, awls, etc. Of these, H 38, 59, 106, 175, 232, 240, and 241, are figured in Plate LXVI, H 290 in Plate LXVIII, and H 361 appears in Plate LXV.

A large number of lengths of antler sawn transversely at the ends, as for instance H 39 and H 48 (Plate LXVI), were no doubt intended for tool-handles, but they had never been used, judging from the fact that no slits or holes occur. (These are included in the section on Sawn Tines).

Wood, especially oak, was used by the villagers for the handles of some of the larger iron implements, such as large knives, saws, bill-hooks, sickles, etc. (See Chapters IX and XI).

The antler handles were found fairly evenly distributed over the Village, but it might be noted that eight of the specimens were collected from Mound V, five from Mound XXVII, and three from Mound XLIX.

A. HANDLES OF ROE-DEER ANTLER, WITH SLITS FOR INSERTION OF TANG, BUT NO RIVET-HOLES.

H 79. Knife-handle,² formed from a shed antler with burr remaining; the two points broken at the tip; the whole surface trimmed and polished. The sawn slit for the insertion of the tang covers 48.5mm. (nearly 2ins.),—more than half the length of the beam.

Found 10½ft. w.s.w. of the c.p. of Mound LXII, 1892.

Figured in Plate LXVI.

H 168. Knife-handle, formed from a shed antler, burr remaining; two of the three points

1. There are two exceptions, H 137 and H 320 having rivet-holes; the former has a rivet in position.

2. The handles described as knife-handles may in some cases have been handles for other implements, such as saws.

are broken at the tip; surfaces trimmed and worn from prolonged use. The sawn slit for the insertion of the tang is 38mm. in length.

Found in the peat outside the palisading, 27½ft. s.e. of the c.p. of Mound LVI, 1896.

Figured in Plate LXVI.

H 209. Knife-handle, sawn transversely at the burr (which has been trimmed to form a projecting bead); one of the two points broken off; the handle has been trimmed to a fairly smooth surface; the wide slit was roughly cut, and is 39mm. in length. At the upper end of the beam and near the fork a circular hole (diam. 8mm.) has been bored at right angles to the line of the slit.

Found on the second floor of Mound IV, 9ft. n.w. of the c.p., 1896.

Figured in Plate LXVI.

H 274. Knife-handle, sawn transversely at the burr (which has been considerably reduced by cutting); the implement has been roughly trimmed, knife-cuts being seen on the lower part of the beam; two of the three points are broken. The slit in this case penetrates the beam to a max. length of 40mm.

Found under the clay of Mound XXXIII, 6¾ft. s. of the c.p., 1898.

H 348. Knife-handle, total length 190mm., worked to a smooth surface, the implement being nicely rounded at the burr-end; the narrow slit is 35mm. in length. The upper point is bevelled and smooth; the two other points have had the tip removed intentionally, the ends being countersunk presumably for the purpose of ornamenting pottery with indented circles about 4 and 6mm. in diam.

Found in the peat below the clay of Mound LXXVI, 4½ft. n.n.e. of the c.p., 1906.

Figured in Plate LXV.

H 364. Knife-handle, sawn off just above the burr, the two points complete; the slit, length 18.5mm., is broken and badly sawn.

Found on the second floor of Mound XIII, 5½ft. n.n.w. of the c.p., 1907.

H 381. Knife-handle, formed from a complete shed antler having three points, length 219mm. (8½ins.); this specimen has not been trimmed; the wide slit has been sawn to a depth of 29mm.

Found in Mound VII.

H 386. Knife-handle, weathered, and in a bad state of preservation, the points broken off; the longitudinal slit through the burr and lower part of the beam is 28mm. in length; at the upper end of the beam just below the fork there is a circular perforation, diam. 2mm.

Found on the w. side of Mound XVI.

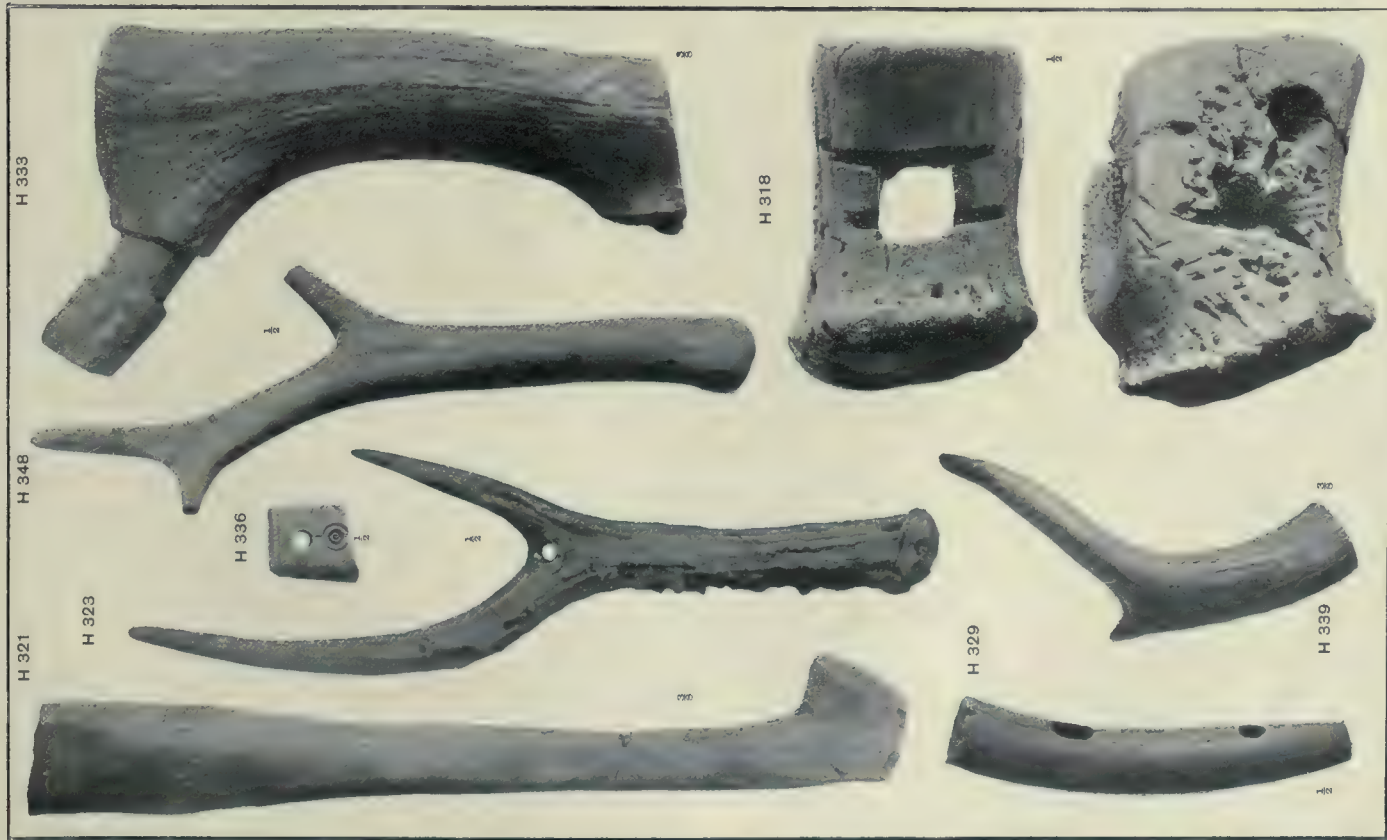
B. HANDLES OF RED-DEER ANTLER, WITH SLITS FOR INSERTION OF TANG, BUT NO RIVET-HOLES.¹

H 98. Curved beam of an antler, with the tines sawn off as stumps, length 223mm. (8¾ins.); the surface is very smooth in places. At one end there is a longitudinal slit roughly sawn to a length of 95mm. (3¾ins.), which may have been intended for the insertion of the tang of a large implement.

Found 14ft. s. of the c.p. of Mound XLIX, 1894.

Figured in Plate LXVI.

1. H 370 has a rivet-hole.



SCALE, LINEAR, EXCEPT H 341.

OBJECTS OF ANTLER FOUND IN THE GLASTONBURY LAKE VILLAGE, 1905-7.

From Photographs by Mr. H. St. George Gray.

H 124. Knife-handle, formed from the greater part of a brow-tine, length 162mm. (6 $\frac{3}{8}$ ins.) ; a part of the burr of the antler remains at the butt-end. The smaller end has been sawn longitudinally to a length of about 52mm. ; the antler is finished at the part nearest the blade of the implement by a deep encircling groove round which a cord or sinew may have been tied to assist in securing the tang of the implement (see H 143).

Found in Mound XLIX, 9 $\frac{3}{4}$ ft. N. of the c.p., 1894.

Figured in Plate LXVI.

H 143. Knife-handle, formed from a large tine measuring 229mm. (9ins.) along the outer curve ; the surface shows knife-cuts and tooling. The sawn slit is fairly wide and 50mm. in length ; at this end the natural surface of the rough antler has been left untrimmed for a length of 32mm., and this part is encircled midway by a deep knife-cut groove round which a sinew was probably tied,—a feature occurring also in H 124 but in a less marked degree.

Found in Mound XXVII, 11 $\frac{1}{2}$ ft. N. of the c.p., 1895.

Figured in Plate LXVI.

H 150. Knife-handle, consisting of a tine deeply curved at the pointed end where it is polished ; the longitudinal slit is about 29mm. in length ; the rough surface of the tine remains.

Found on the third floor of Mound XXVII, 12 $\frac{1}{2}$ ft. N.W. of the c.p., 1895.

H 167. Knife-handle, consisting of a nicely curved brow-tine which has been tooled and polished over the greater part of the surface ; length on the outer curve 260mm. (10 $\frac{1}{4}$ ins.). The longitudinal slit for the insertion of a tang is roughly sawn and has a max. width of 5mm. ; length 50mm.

Found among the timberwork, 22 $\frac{1}{2}$ ft. S.E. of the c.p. of Mound LVI, 1895.

Figured in Plate LXVI.

This specimen is now in Taunton Castle Museum.

H 216. Knife-handle, consisting of a tine worked down to a smooth surface, length 140mm. ; the large end is clean cut transversely, and the slit, length 30mm., is sawn less roughly than in most of the other handles.

Found among the brushwood, 16 $\frac{1}{2}$ ft. N.N.E. of the c.p. of Mound V, 1896.

Figured in Plate LXVI.

H 217. Knife-handle, formed from a tine 220mm. (8 $\frac{5}{8}$ ins.) in length ; the surface is smooth and the longitudinal slit 45mm. long on the outer curve.

Found in the peat, 16 $\frac{1}{2}$ ft. N.E. of the c.p. of Mound V, 1896.

This specimen is now in the British Museum.

H 225. Smooth tine, with traces of a longitudinal slit at the larger end ; probably a broken knife-handle.

Found in the peat, 14 $\frac{1}{2}$ ft. E. of the c.p. of Mound V, 1896.

H 278. Part of the beam and crown of an antler, greatest length in a straight line 375mm. (14 $\frac{3}{4}$ ins.) ; one of the points at the crown has been removed by sawing a right-angle notch ; the other point remains and is polished. At the other end the beam has been cut all round in order that a bead or collar, 13mm. in width, might be formed ; the longitudinal slit, presumably sawn for the insertion of the tang of a knife or some other cutting implement, penetrates the beam for a distance of 53mm.

Found under the first floor of Mound XXX, 8 $\frac{1}{2}$ ft. S.S.W. of the c.p., 1898.

Figured in Plate LXVI.

H 370. Knife-handle of antler (? red-deer), much shrunk and discoloured by calcination, and very fragmentary. The end having a longitudinal slit and rivet-hole is fairly perfect, and it is finished in this part by a beaded termination.

Found 12ft. N.W. of the c.p. of Mound LXII, 1892.

C. HANDLES OF RED-DEER ANTLER, WITH IRON TANGS STILL REMAINING IN THE
SLITS SECURED BY ONE OR TWO IRON RIVETS.

H 37. Knife-handle, consisting of an almost straight tine, trimmed and polished; the longitudinal slit is filled by a tang secured to the handle by two rivets penetrating both faces of the antler (the other tangs are fixed in the same way). The slit is 36mm. in length, and the handle (exclusive of the projecting tang) 176mm. (nearly 7ins.).

Found in Mound XLVI, 1½ft. E.N.E. of the c.p., 1893.

Figured in Plate LXVI.

H 129. Knife-handle, consisting of a deeply curved tine, trimmed and polished, length 177mm. on the outer curve. The smaller end of the handle measures 16 by 14.5mm., the point having been cut off; the other end measures 21.3mm. square. The tang still remains in position and penetrates the handle to a depth of 25mm.; there are two rivet-holes, the upper one filled with a rivet, the lower one empty.

Found in the peat, 16ft. S.E. of the c.p. of Mound XLIX, 1894.

Figured in Plate LXVI.

H 220. Large knife-handle, consisting of a deeply curved tine, partly trimmed and polished, length 270mm. (10½ins.) on the outer curve; the point has not been removed in this case. Part of the tang remains in position and penetrates the handle to a depth of 49.5mm. The handle is somewhat damaged at this end, but on one side both the rivets remain.

Found on the second floor of Mound V, 16ft. S. of the c.p., 1896.

Figured in Plate LXVI.

H 354. Knife-handle, consisting of a nicely worked tine of oval section tapering towards the butt; length along the outer curve 258mm. (10½ins.). The smaller end measures 15.5 by 11.3mm., the point having been cut off; the other end measures 32.5 by 24mm. The base of the tang, secured by two rivets, still remains in position, being let into a slit to a depth of about 32mm.

Found on the fourth floor of Mound LXXIV, 4½ft. W.S.W. of the c.p., 1906.

Figured in Plate LXV.

H 395. Knife-handle, consisting of a small polished tine, length 113mm. on the outer curve; at the smaller end the handle has been notched all round, probably to receive a metal ferrule. A small part of the tang, fixed by one transverse rivet, still remains in the slit, which is 23mm. in length.

Precise locality not recorded.

Figured in Plate LXVI.

D. HANDLES OF RED-DEER, WITHOUT SLITS FOR THE INSERTION OF METAL TANGS
OR RIVET-HOLES (*unless otherwise stated*).

H 8. Point of a curved tine, polished, length 77mm.; sawn off at the larger end and drilled longitudinally,—probably to receive the tang of a tool.

Found in the peat near the palisading, 28ft. E.S.E. of the c.p. of Mound XXIII, 1893.

H 38. Point and part of the shaft of a tine having a slight ogee curve, sawn off at the larger end, where a little of the cancellous tissue has been removed; length 140mm. It is highly polished, especially towards the point. Perhaps intended for a knife-handle.

Found in Mound LXII, 12ft. N.N.E. of the c.p., 1892.

Figured in Plate LXVI. (Scale ½ linear).

H 45. Straight tine, length 103mm., highly polished at the pointed end; clumsily cut off at the larger end with a knife; at this end the cancellous tissue has been removed to a depth of 28mm.; and the object is regarded as a knife-handle.

Found in the peat, 22ft. s.w. of the c.p. of Mound LXV, 1892.

H 59. Piece of cut antler, length 63mm., smooth from long use; at the smaller end the handle is drilled longitudinally with a square hole (sides about 5mm.).

Found 18ft. n.w. of the c.p. of Mound LXV, 1892.

Figured in Plate LXVI. (Scale $\frac{1}{2}$ linear).

H 106. Stout piece of antler, length 96mm., evidently the handle of a tool; on one side the surface is highly polished, but it is quite rough on the other. At the smaller end, where the diam. is 31.5mm., a large diamond-shaped hole has been bored longitudinally; it tapers inwards and extends to a depth of 47mm.¹

Found in Mound XXI, 7½ft. n.n.w. of the c.p., 1894.

Figured in Plate LXVI.

H 112. Piece of a tine, length 83mm., somewhat worked and weathered; at the smaller end there is a longitudinal hole of oval form, and at the other end a larger circular hole.

Found 26ft. s.w. of the c.p. of Mound XXV, 1894.

H 114. Piece of a polished tine, length 68mm., with holes in the cancellous tissue at both ends; round the middle a shallow groove has been scored, and between this and the smaller end one shallow and one deeper hole have been drilled into the face of the antler. It may have been the handle of a small implement.

Found 19ft. s.e. of the c.p. of Mound XXVII, 1894.

H 137. Handle of a tool, consisting of the pointed end of a tine, length 89mm.; the large end is open, all the cancellous tissue having been removed at the mouth; across this socket a corroded iron rivet still remains in position.

Found in Mound XXVII, 6ft. s.s.e. of the c.p., 1895

H 147. Large curved piece of antler, length 227mm. (9ins.), not polished or trimmed; there are marks of battering on one side; the ends are sawn off square, and at the larger end the cancellous tissue is bored with a large circular hole—perhaps intended for the insertion of the tang of a tool.

Found in Mound XXVII, 8½ft. w.n.w. of the c.p., 1895.

H 151. Greater part of a tine, sawn off square at both ends, length 202mm.; slightly polished in places. At the larger end the central part of the cancellous tissue has been drilled to a depth of 17mm., and no doubt the object was intended for the handle of an implement.

Found in Mound XXVII, 10ft. w.n.w. of the c.p., 1895.

H 175. Part of a handle of a tool, consisting of a curved tine, trimmed, polished and weathered; on the concave curve there is a bead in high relief at the smaller end of the handle. The cancellous tissue has been removed, rendering the handle tubular. When complete this handle may have had a slit at the larger end.

Found in the peat outside the palisading, 24½ft. w. of the c.p. of Mound V, 1896.

Figured in Plate LXVI.

H 232. Handle of a tool of cut antler, of oval section, length 86mm.; at the smaller end

1. A similar handle of antler was found in the Fort on Castle Law, Abernethy, and has been figured (*Proc. Soc. Antiq. Scot.*, XXXIII, 31).

there is a longitudinal hole for the insertion of a tang,—the diameter at the mouth almost covering the cancellous tissue.

Found on the third floor of Mound V, 10½ft. w.s.w. of the c.p., 1896.

Figured in Plate LXVI.

H 240. Handle of a tool, of circular section, length 82mm., the surface nicely tooled and polished; diam. at base 28mm., at top 21mm. The object is tubular; the hole is, however, largest at the smaller end of the handle.

Found on the the first floor of Mound V, 13ft. s.s.e. of the c.p., 1896.

Figured in Plate LXVI.

H 241. Handle of a tool, consisting of a piece of antler having an ogee curve, length 84mm.; the surface has not been trimmed or polished. At one end there is a square hole longitudinally bored, and at the other a round hole, not so deep as the former.

Found 18½ft. s.s.e. of the c.p. of Mound V, 1896.

Figured in Plate LXVI.

H 290. Piece of worked antler, length 90mm.; of oval section, 30 by 24mm.; ornamented by a narrow "beading" at one of the squared ends. It was no doubt intended for a knife-handle; a small round hole has been hollowed out at one end, and an oval and larger hole at the other end, but the cavities do not appear to have joined in the middle.¹

Found in Mound LXXVIII, 11ft. w.s.w. of the c.p., 1904.

Figured in Plate LXVIII.

This specimen is now in the British Museum.

H 295. Handle, formed from a curved and slender tine, trimmed and weathered, length 162mm. on the outer curve. At the larger end the cancellous tissue has been removed to a sufficient depth for the insertion of the tang of a tool.

Found in the peat, 37½ft. n. of the c.p. of Mound LI, 1904.

H 320. Handle, consisting of a tine, the smooth point remaining, length 160mm. on the outer curve. At the larger end there is a decided socket with a transverse rivet-hole 6mm. in diam.

Found on the first floor of Mound LXXI, 4½ft. w. of the c.p., 1905.

H 361. Small handle for an awl, consisting of a section of a tine 48mm. in length, and squared at both ends. Traces of the tang of the corroded awl still remain embedded in the smaller end of the handle. Double incised lines as ornament encircle both ends of the handle.

Found on the second floor of Mound LXVI, 8ft. s.w. of the c.p., 1907.

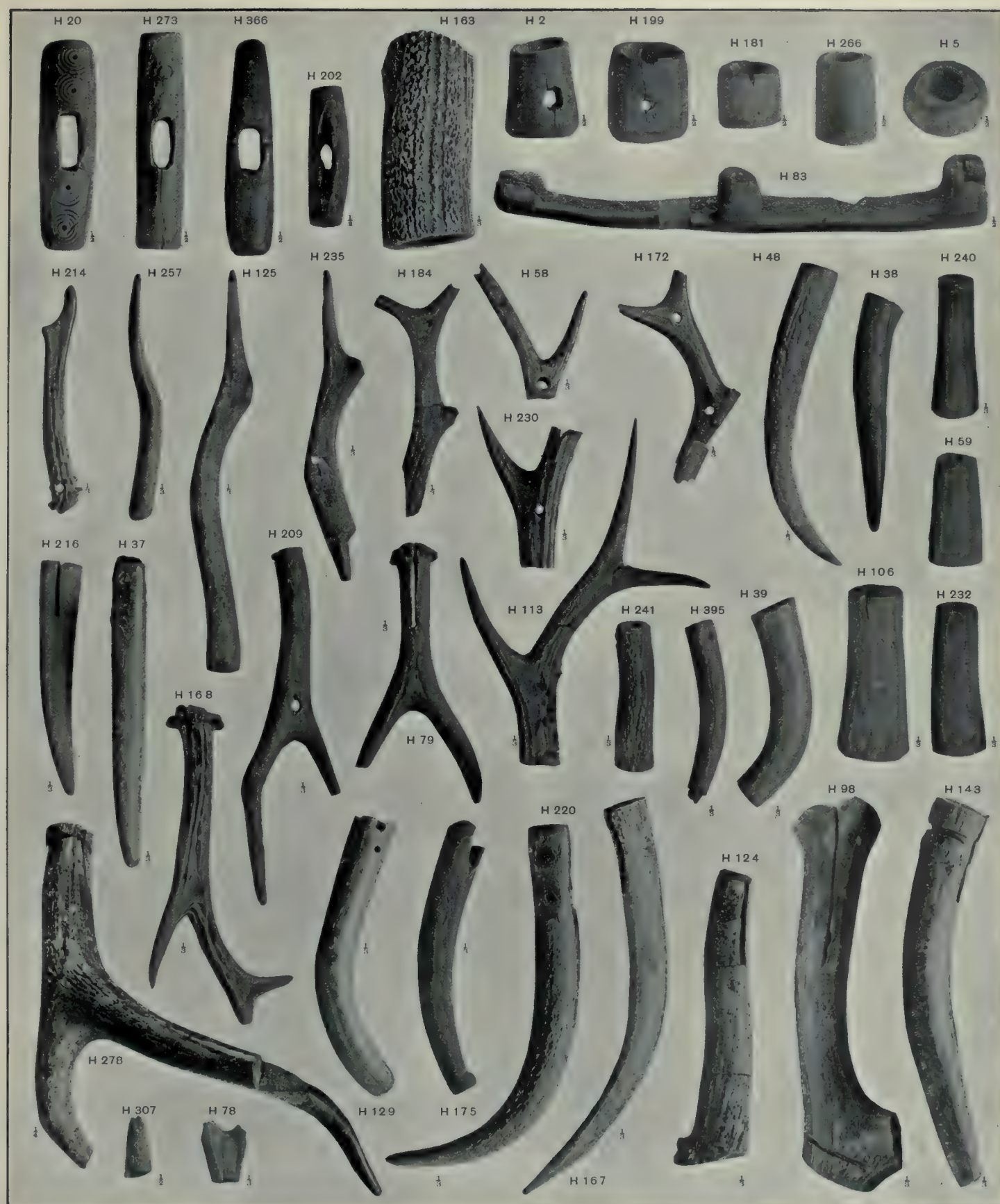
Figured in Plate LXV.

IV. TOGGLE-LIKE FASTENERS.

These objects, sometimes of bone, more often of antler, in shape not unlike a corkscrew handle, may have been used as "toggles," "buttons," or dress-fasteners. They are found both with Late-Celtic and Roman remains, and have been rather a puzzle to antiquaries.

The following details may be given of four antler specimens found in the Lake-village classified under this heading, all of which are figured in Plate LXVI:—

1. A somewhat similar handle, found in a crannog at Buston, is figured in Munro's "Scottish Lake Dwellings," p. 220, fig. 222.



OBJECTS OF ANTLER, GLASTONBURY LAKE VILLAGE.

From Photographs by Mr. H. St. George Gray.

H 20. Piece of solid antler, slightly curved and of oval cross-section, length 78.5mm. ($3\frac{1}{8}$ ins.); perforated through the short diameter by an oblong hole, 22 by 8.5mm. On either side of the hole is an ornamental groove running the length of the object. It is also ornamented by groups of four concentric circles enclosing a dot, two at each end. The circles were probably described by means of a centre-bit.

Found in Mound XXV among some fire-ash between two layers of clay, $9\frac{1}{2}$ ft. N. of the c.p., 1893.

H 202. Piece of solid antler, length 54mm., sawn off square at both ends and enlarging both ways towards the middle. Viewed sideways the object is curved. The transverse hole is peculiar; on the upper, or convex surface, it is of an irregular oval form, about 11 by 7mm.; on the lower, or concave surface, it is very roughly cut, but takes the general form of an elongated lozenge, 33 by 8mm. in dimensions. There is no ornamentation.

Found 11 $\frac{1}{4}$ ft. w.s.w. of the c.p. of Mound VI, 1896.

H 273. Straight piece of solid antler, highly polished and of round cross-section (almost circular), max. diam. 18.5mm.; it is sawn off square at both ends; length 81mm. The central aperture is of a flattened oval form, 19.5 by 9mm. The ends are ornamented with a bead in slight relief. Between the hole and one of the ends there was a round hole (diam. 5mm.) through the object in the same direction as the large aperture. This was subsequently filled up by an antler plug, as seen in the illustration.

Found on the third floor of Mound XXXV, 6ft. N.W. of the c.p., 1898.

H 366. Part of a polished tine of oval cross-section, length 81mm., the point removed by means of a knife. It is perforated centrally on the line of the short diameter by an oblong hole having rounded corners, well worn; the hole measures 16 by 9.5mm. Between this aperture and the larger end (which is worn down especially on one side) the tine is tubular.

Found in Mound XX.

It is possible that there may be some relationship between these objects and the "sliders," or belt-fasteners, of jet, lignite, shale and wood, which have occasionally been found with skeletons of the Bronze Age in Yorks, Berks, Dorset, the Isle of Skye, etc.¹ Comparison should also be made with the long perforated bronze objects found in the Late-Celtic hoard, Polden Hills, Somerset (Brit. Mus.),² and somewhat similar specimens discovered at Stanwick, Yorks (Brit. Mus.).³

Perhaps the most interesting toggle-like fasteners which have been recorded are those which were found in the Borness Cave, parish of Borgue, Kirkcudbrightshire, 1872.⁴ They have been described as hollow cylinders, each with a central oval or oblong aperture cut through the short axis; one, however (no. 124), of these specimens is solid (like three of the four specimens from the Lake-village). They are finely ornamented with incised lines and dots-and-circles. The authors

1. P.R. *Excavations*, IV, Plate 294, fig. 1, and p. 140; *Archæologia*, XLIII, 513; Wilson's "Preh. Annals," 2nd edit., I, 441; *Proc. Soc. Antiq. Lond.*, 2 ser., IV, 521; *Journ. B.A.A.*, XVI, 323, Plate 26, fig. 5; Mortimer's "Burial-Mounds of E. Yorks," pp. lxxiii, 73, 127, 177, and Plates xviii, xxxix and lix.

2. *Archæologia*, XIV, Plate xx, fig. 6.

3. *Proc. Ryl. Archæol. Inst.*, York, 1846, p. 37, Plate iii, fig. 3, and Plate iv, fig. 8.

4. *Proc. Soc. Antiq. Scot.*, X, 495-7, and Plate xxi.

of the paper on the Borness Cave say that "the finest specimen, indeed the only perfect one that has occurred (no. 32), contained, when it was first discovered, two bone pegs," each having a head and about $1\frac{1}{4}$ ins. long.¹ "When the implement itself was washed to free it from the cave earth which filled it, these pegs were found in the interior, one at either end, both lying with their points inwards. It seems probable that they were an essential part of the instrument, and for convenience kept inside when not in use. . . . It is of course possible that these pegs may have been used in the position in which they were found, but it is difficult to conceive for what purpose."

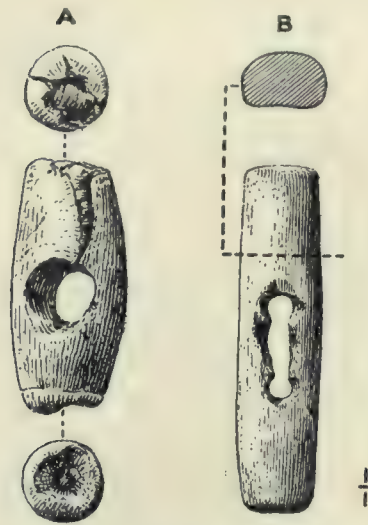


FIG. 157. — TOGGLE-LIKE FASTENERS, FOUND IN SOMERSET. (A) HAM HILL. (B) CANNINGTON PARK CAMP.

From Drawings by Mr. E. Sprankling.

York Museum contains two specimens. One, found associated with Roman remains in York, elaborately ornamented with a band of cross-hatching and lines of dots-and-circles, has a central transverse aperture of oval form and is tubular lengthwise. In the cylindrical hole a pair of pegs of bone or antler was found—a parallel with the discovery in the Borness Cave.

A cylindrical piece of antler, only 32.5mm. long and perforated transversely by a large oval hole, was found on Ham Hill, S. Somerset (Taunton Mus.). One half of the tubular part is filled with a short iron peg which has become oxidized and has split the antler.² This specimen is represented in Fig. 157, A.

An unornamented specimen (in private hands) was found in agricultural operations at Cannington Park Camp, near Bridgwater, and is illustrated in Fig. 157, B. The original perforation appears to have

been damaged and subsequently extended in both directions terminating in rounded ends.

The Hunsbury collection of Late-Celtic remains (Northampton Mus.) includes a specimen of this kind about 3 ins. long, having an oblong aperture about $\frac{3}{8}$ in. long. On one side and at both ends the "toggle" is ornamented with four concentric circles enclosing a dot, this figure being surrounded by four single dots-and-circles forming a square.³

1. *Proc. Soc. Antiq. Scot.*, X, Plate xvii, no. 33.

2. Another object, perhaps used as a dress-fastener, was found on Ham Hill (Taunton Mus.). It consists of the shaft of a metatarsus of sheep (or goat), naturally tubular, length 69mm. It is perforated transversely through the short diameter by a long slit (length about 28mm.) tapering to a point at both ends.

3. *Reports, Assoc. Architect. Soc.*, XVIII, Plate ii, fig. 12.

A plain specimen with an oblong aperture, and another with a circular hole ornamented with encircling bands of herring-bone pattern were found in the Settle Caves, Yorks (Brit. Mus.).¹

Another having a long aperture and ornamented in a similar manner to one of the Settle specimens was found during the rebuilding of the Royal Exchange, London.² "This specimen is solid at one end, and its partial hollowness seems owing to the natural form of the bone."

Similar objects of antler (about eight), pierced at the middle by an oblong hole, were found in Heathery Burn Cave, co. Durham (Brit. Mus.). They vary from 2 to 3 $\frac{3}{4}$ ins. in length. One has been figured.³

A specimen about 4ins. long, having symmetrical convex sides, an oblong perforation, and ornamented at both ends with a band of oblique parallel lines was found at *Venta Silurum* (Caerwent Mus.).

An object of this type, about 3ins. long, finely ornamented with incised lozenges filled with parallel lines and with dots-and-circles, was found in sewer excavations in 1881 at *Isca Silurum* (Caerleon Mus.). It is cylindrically bored and has a large transverse aperture in the middle.

Wroxeter has produced at least one of these objects, which has an oblong perforation and is ornamented at both ends with single bands of lattice pattern.⁴

An Eskimo "toggle" of similar form, with round perforation, comes from Chalitmut, Bering Strait,⁵ it is of solid antler, length 1 $\frac{3}{4}$ ins., diam. $\frac{3}{4}$ in.

V. FERRULES.

Eleven specimens were collected during the exploration of the Village. Of these, three were found in Mound XXII, two in Mound V, and two in Mound IX.

These ferrules are short pieces of antler of round section rendered tubular by the removal of all, or nearly all, the cancellous tissue. They vary in length, the average being 21.3mm. ($\frac{7}{8}$ in.). Two of the specimens, H 2 and H 199, are perforated transversely by a rivet-hole penetrating opposite surfaces. H 266 is the only example which is ornamented; the favourite dot-and-circle was used. Some of the best preserved ferrules are figured in Plate LXVI.

1. *Coll. Antiqua*, I, Plate xxix, fig. 2, and Plate xxx, fig. 2; Ward's "Roman Era in Britain," 260, "L"; *Journ. Anthropol. Inst.*, I, 64, and Plate ii, fig. 2. It is said that several have been found in the Victoria Cave, Settle (*Proc. Soc. Antiq. Scot.*, X, 496).

2. Roach Smith's "Roman London," Plate xxxiv, fig. 5; Ward's "Roman Era," 260, "K."

3. *Archæologia*, LIV, 109.

4. "Excavations on the Site of the Roman Town at Wroxeter, 1912," Plate xi, fig. 25; see also fig. 26. The author writes, "These are sometimes stated to be cheek-pieces of bridle-bits, but it seems more probable that they were somewhat similar to a toggle, and were used as handy fasteners for straps or ropes, perhaps in connection with the bucket of a well."

5. 18th Ann. Report, Bureau of Amer. Ethnology, 1896-7, Plate xxvii, 2.

These objects were probably used as ferrules for the wooden handles and shafts of implements—to strengthen them and to prevent splitting and wearing.

H 2. Ferrule, much damaged but partly repaired, length 35mm.; of oval section, min. ext. diam. 23 by 21mm.; the polished sides are thin, all the cancellous tissue having been removed. Opposite surfaces are perforated transversely by a rivet-hole, not truly circular, diam. about 8mm.

Found in Mound XXII, 9½ft. N.N.E. of the c.p., 1893.

Figured in Plate LXVI.

H 5. Ferrule, consisting of a short length of antler of oval section, rendered tubular by the removal of the greater part of the cancellous tissue. This well worn but perfect specimen measures 31·5 by 27mm. externally, and 17·7mm. in length.

Found in Mound XXII, 8½ft. E.N.E. of the c.p., 1893.

Figured in Plate LXVI.

This specimen is now in Taunton Castle Museum.

H 22. Fragmentary segment of a ferrule of circular section, length 12mm.

Found in Mound XLIV, 8ft. N.N.W. of the c.p., 1893.

H 27. Small ferrule, or ring, incomplete, having rather sharp edges top and bottom; length 16·5mm.

Found 15½ft. N.E. of the c.p. of Mound XXII, 1893.

H 136. Ferrule, consisting of a cylindrical piece of smooth antler, length 20mm.; max. ext. diam. 22mm.; saw-marks are seen at both ends, as in most of the other examples.

Found on the second floor of Mound XXVII, 13ft. N.N.E. of the c.p., 1895.

This specimen is now in the British Museum.

H 181. Ferrule, consisting of a tubular piece of antler, not polished; length 23mm.; max. ext. dimensions, 24 by 22mm.

Found 18½ft. N.W. of the c.p. of Mound IX, 1896.

Figured in Plate LXVI.

H 182. Half a circular ferrule, max. length 14·5mm.

Found on the second floor of Mound XI, 8¾ft. S.S.W. of the c.p., 1896.

H 199. Ferrule, length 33mm., similar to H 2 in having a transverse rivet-hole through opposite surfaces; it is not truly circular, diam. about 4·5mm. The surface has been trimmed and polished. In this specimen the cancellous tissue has not been entirely removed.

Found in Mound IX, 6ft. S.E. of the c.p., 1896.

Figured in Plate LXVI.

H 222. Thin section of antler, the tissue removed, sawn at both ends; perhaps a ferrule, length 7mm.

Found in Mound V, 8¾ft. N.W. of the c.p., 1896.

H 242. Small ferrule of a somewhat tapering form, length 23mm.; roughly worked and bored, not all the tissue having been removed.

Found on the second or third floor of Mound V, 11½ft. S.S.W. of the c.p., 1896.

H 266. Ferrule, smooth and nicely worked, length 32mm.; ext. diam. of larger end, 23 by 21mm.; the tissue has been carefully removed. It is ornamented by two dots-and-circles (diam. 14mm.), one each on opposite faces,—presumably described by means of compasses or a centre-bit.

Found in Mound LII, 10½ft. N.N.W. of the c.p., 1898

Figured in Plate LXVI.



OBJECTS OF ANTLER, GLASTONBURY LAKE VILLAGE.

From Photographs by Mr. H. St. George Gray.

VI. IMPLEMENTS USED FOR ORNAMENTING POTTERY.

Under the heading of Potters' Tools in the chapter on Bone Objects, pp. 412-13, three modelling-tools found in the Village have been described; also a worked rib-bone which was probably used for inscribing ornamental designs on clay vessels before firing.

In this section there remain to be described four tools of antler, three of them (H 19, H 74, and H 75, Plate LXVII) the implements with which the potter made impressions of circles on moist clay;¹ the other (H 307, Plate LXVI) the remains of an implement for scoring double indented lines, the total width covering 4mm.

The external diameters of the four circles obtainable with the three first-named implements are 6, 9, 10, and 14.5mm. respectively. Only the first of these, however, is a true circle.

H 19. Smooth tine, length 110mm., with one transverse saw-mark; the tip has been removed and a circular depression carefully worked at the end, having an ext. diam. of 6mm.

Found in Mound XXIV, 4ft. s.w. of the c.p., 1892.

Figured in Plate LXVII.

H 74. The beam and parts of two tines of a roe-deer antler, one of which is broken off as a stump; the point of the other tine has been cut off, and a tapering circular hole bored longitudinally, having an ext. diam. of 10mm. The burr has been entirely removed, and this end of the implement has also been converted into a circular pottery-stamp, with an ext. diam. of 14.5mm. Length of implement 142mm.

Found in the peat 23ft. N.E. of the c.p. of Mound LXV, 1892.

Figured in Plate LXVII.

H 75. Point of a tine (length 46.5mm.) worked in a similar manner to H 19 and H 74; this pottery-stamp has an ext. diam. of 9mm.

Found 20½ft. E. of the c.p. of Mound LXII, 1892.

Figured in Plate LXVII.

H 307. Point of a tine, calcined, length 28mm.; bifurcated at the tip, leaving a groove between two smooth rounded projections. This implement would be capable of making a double line if drawn along unbaked clay.

Found in Mound LXX, 9½ft. N.W. of the c.p., 1905.

Figured in Plate LXVI.

VII. MISCELLANEOUS OBJECTS WITH ARTIFICIAL PERFORATIONS
(transverse and longitudinal).

Included among these eighteen specimens are some of considerable interest. H 81 (Plate LXVII) is a straight "pin" of antler, 4½ins. in length. The shaft is of rounded section perforated near top and bottom by two transverse circular holes in the same direction; the flat head has a projecting and moulded edge.

1. See also H 348, Plate lxxv, and p. 456.

Had H 60 (Plate LXIV) not been perforated in opposite directions it would have been included among the hammers, which it resembles in general outline.

The flat spatulate object, H 227 (Plate LXVII), having bevelled edges at both ends, with a circular perforation at the larger end, is the only specimen of this type which has been found in the Lake-village.

H 100 (Plate LXVII) is an interesting little button-shaped piece of antler of plano-convex cross-section, with a small perforation through the middle.

It is difficult to suggest a purpose for the nicely worked tine, H 358 (Plate LXV), notched and perforated at the squared end. Had the cancellous tissue been bored at this end it would have been included among the knife-handles.

Terret-rings (pp. 229-232) are generally of bronze, or iron cased with bronze ; but in H 95 (Plate LXVII) we have an oval ring of antler which is evidently a terret (*i.e.*, that portion of horse-trappings through which the reins pass).

Among the most interesting and well worked objects included in this section are H 80 and H 83, figured in Plates LXVI and LXVII ; but as yet we have not been able to assign a definite purpose to either of them, although several theories have been advanced as to their use. They are fully described on pp. 466, 467.

H 12. Straight section of red-deer antler, length 54mm. (2½ins.), trimmed and polished. The object is rendered tubular by the removal of some of the cancellous tissue at one end, and all of it at the other end. It is rather short for the handle of a tool.

Found in the peat, 22ft. E.S.E. of the c.p. of Mound XXII, 1893.

H 60. Base of a red-deer antler with the burr and the brow-tine sawn off ; most of the beam has also been removed by means of a saw. The object has been perforated from side to side with a large circular hole about an inch in diam. ; it has also been roughly bored in an opposite direction. In general outline it takes the form of the hammers described in pp. 435-440.

Found near the N.E. side of the hearths, Mound LXII, 1893.

Figured in Plate LXIV.

H 80. Object of unknown use, nicely worked and polished from long wear, length 100mm. (4ins.). It consists of a length of red-deer antler, tubular (with all the cancellous tissue removed), and having a max. ext. diam. of 21mm. At the larger end it was cut off square and notched transversely at a distance of 21mm. from this end ; this caused the removal of rather more than half the width of the tine from which the object was formed. At the other end of the central portion there is a rather deeper transverse notch on the opposite side to the notch first mentioned. From this notch what remains of the side of the tine extends to a distance of 51mm., gradually tapering to a rounded point. The surfaces of the object are ornamented with lines of small dots, which do not appear to be symmetrically arranged.

Found in Mound XXIV, 11ft. N.W. of the c.p., 1893.

Figured in Plate LXVII.

A precisely similar implement, but rather wider and shorter, was found in Wookey Hole ;¹ the projecting end is however more spoon-shaped than pointed. The Wookey implement is ornamented with a somewhat irregular grouping of dots-and-circles.

1. Balch's "Wookey Hole" (1914), p. 119, figs. 19, 20 ; the writer considers it "to have been some form of shuttle."

H 81. Complete pin, formed from a straight tine, length 117mm. (about 4½ins.), having a projecting and moulded head with a flat top (diam. 20mm.). Just below the head the stem is perforated by a transverse hole, 8mm. in diam.; and near the pointed end is a similar perforation in the same direction (diam. 6mm.),—nearer one side of the pin than the other.

Found in Mound XLIV, 9ft. N. of the c.p., 1893.

Figured in Plate LXVII.

H 83. Incomplete object of doubtful use, and of a type seemingly unknown from other Late-Celtic sites. A small part of the shaft, or beam, appears to be missing, but it is estimated that the original length of the specimen was about 187mm. (7½ins.). It consists of a length of antler varying from 16.5 to 20.5mm. in width, and having a convex base. At the ends and in the middle there are large projections, as seen in the illustration, which, before they were broken, apparently represented the complete outline of the natural form of the antler. These three rounded projections are much broken at the top, and on both sides of the fractures clear traces of rivet-holes are seen which penetrated the thickness of the hard part of the antler; these enlargements are tubular, and the cancellous tissue has been entirely removed. The outer surfaces all over are highly polished,—probably from prolonged use.

Found in Mound LXII, near the w. side of one of the hearths, and 8ft. w.s.w. of the c.p., 1892.

Figured in Plate LXVI.

A long pointed and slightly curved object of antler, having one tubular projection near the large end of a somewhat similar type to H 83, found in the Lake of Bienne, is in the collection of Dr. H. Colley March, F.S.A.

H 86. Snag of antler, the tip deficient, length 32.5mm.; near the butt-end there is a transverse perforation, diam. 4mm.

Found in Mound LXIV, 10ft. s.w. of the c.p., 1893.

Figured in Plate LXIV.

H 87. Fragment of a tine, charred white, with traces of a perforation near the butt-end.

Found 20ft. N.W. of the c.p. of Mound LXII, 1892.

H 95. Oval ring, somewhat flattened on one side, apparently cut from the burr of a red-deer antler; very smooth and polished from prolonged use. On close examination it is evident that this was a terret-ring of a form found in bronze in the Lake-village,¹ Cadbury Camp, S. Somerset (Taunton Mus.),² and elsewhere. It is the only example of an antler terret known to the writer. It closely resembles the Cadbury specimen, and has precisely the same max. diam., viz., 70mm. (2¾ins.). The substance of H 95 is round in section, max. diam. 10.5mm. The "bar" for attachment, on the flatter side of the terret, is slightly notched at either end, and is 42mm. in length. The grooves and hole on one side of the ring appear to be natural irregularities in the burr of the antler.

Found in Mound XX, 4½ft. s.s.w. of the c.p., 1894.

Figured in Plate LXVII.

H 100. Button-shaped piece of antler of plano-convex cross-section, having a transverse perforation larger at the base than on the rounded surface of the disc; max. diam. 17mm., thickness 8mm.; highly polished.

Found 15ft. s. of the c.p. of Mound XLIX, 1894.

Figured in Plate LXVII.

1. E 8,—Vol. I, p. 231, and Plate xliii.

2. Vol. I, p. 230; also *Proc. Som. Arch. Soc.*, LIX, ii, pp. 11, 12,

H 213. Section of unpolished antler, length 106mm., sawn off square at both ends. This stout piece has been rendered tubular by the removal of all the cancellous tissue, and can hardly have been intended for the handle of a tool.

Found on the first floor of Mound IV, 15ft. w. of the c.p., 1896.

H 227. Flat spatulate object, smooth on the convex or upper surface, the under-surface exhibiting the cancellous tissue of the antler; length 122mm. (4 $\frac{3}{4}$ ins.), max. width 27mm.; the upper side is tooled over the whole surface. Both ends of the implement are more or less bevelled and sharpened, and it may perhaps have been used as a modelling-tool. Near the larger end the implement is neatly perforated by a hole 9mm. in diam.

Found in the peat, 24 $\frac{1}{2}$ ft. w.s.w. of the c.p. of Mound V, 1896.

Figured in Plate LXVII.

H 270. Piece of a red-deer tine, broken transversely across a perforation; perhaps part of a "cheek-piece."

Found in the peat, 18ft N.W.N. of the c.p. of Mound XXXVII, 1898.

H 275. Worked tine of a red-deer antler, length 248mm. (9 $\frac{3}{4}$ ins.); of the horse's "cheek-piece" type, but perhaps too large for an object of that character. It is broken at the butt-end where it was probably socketed. The tip is broken off at the other end; at 80mm. from this end there is a transverse perforation (not truly circular) through the narrow diameter of the tine.

Found on the first floor of Mound XXXIII, 2 $\frac{1}{2}$ ft. s.w. of the c.p., 1898.

Figured in Plate LXVII.

H 289. Object of unknown use and roughly cut, 66mm. in length; the head, which has been perforated lengthwise, consists of the complete section of the tine, with saw-marks at top and bottom; the blunt-ended projecting peg is continuous with one face of the antler; between the head and peg the object is notched by the saw, as seen in the illustration.¹

Found in Mound LV, 10ft. s.w. of the c.p., 1904.

Figured in Plate LXVIII.

H 305. Point of a tine, whitened and shrunk by calcination, and much damaged. It has a transverse perforation, and is similar in many respects to H 303 and H 304, described on p. 454.

Found under the clay of Mound LXX, 9ft. N.N.W. of the c.p., 1905.

H 358. Well preserved object consisting of a complete tine of red-deer sawn off square at the base; length 190mm. (7 $\frac{1}{2}$ ins.); max. thickness at the solid butt 21mm. At 6.5mm. from this end is a transverse perforation, about 4.5mm. in diam. This end has been slightly notched all round for a width of about 14mm., and there is a plain bead round the head. The tine is further ornamented by a slightly incised line encircling the object at 28mm. from the head.

Found at the margin of the fourth floor of Mound LXXV, 11ft. w. of the c.p., 1907.

Figured in Plate LXV.

H 382. Part of a red-deer tine, much weathered, having traces of a perforation; perhaps part of a "cheek-piece."

H 396. Point of a tine of red-deer antler, sawn off square at the butt-end, length 91mm.; near the butt a circular perforation, diam. 3.3mm.; repaired from several fragments and incomplete.

Found in Mound XX.

1. Compare a longer implement of similar form found in a broch at Jarlshof, Sumburgh, Shetland (*Proc. Soc. Antiq. Scot.*, XLI, 28); also another similar object found in a *terp-mound* in West Friesland, (*L.D. of E.*, p. 341, no. 11).

VIII. BLOCKS AND LENGTHS OF ANTLER SAWN OFF TRANSVERSELY AT BOTH ENDS.

The following specimens, seventeen in number, consist of long and short lengths of the beams and tines of red-deer antler which have been more or less worked. All of them have been sawn off transversely at both ends ; some of the specimens are clean cut ; others have been very roughly sawn through. Only H 39, H 93, and H 163 have been figured (Plates LXVI and LXVII).

No.	DESCRIPTION.	LENGTH.	MOUND.	YEAR.
H 39	Tine, deeply curved, cleanly sawn ; surfaces neatly pared down and nicely finished as if intended for a knife-handle.	130	LXV	1892
H 91	Piece of antler, sawn on three surfaces.	—	II	1894
H 93	Beam of an antler, smoothed and scored in places ; irregular longitudinal holes have been bored in the tissue, two at one end, one at the other.	140	XXV	1894
H 123	Sawn block.	—	LI	1894
H 130	Block sawn on three surfaces.	—	XLV	1894
H 133	Part of a tine, the natural roughness of the surfaces remaining ; some of the tissue removed at both ends.	142	XXVII	1895
H 149	Polished piece of tine.	130	XXVII	1895
H 155	Part of a tine.	57	XXVII	1895
H 163	Beam of a large antler with the natural rough surface.	123	LXX	1895
H 164	Block of oval section.	49	LX	1895
H 176	Part of a tine, polished at one end.	134	V	1896
H 201	Piece of antler of circular section	44.5	VI	1896
H 243	Part of beam, close to burr.	—	V	1896
H 245	Piece of antler.	69	III	1897
H 322	Piece of antler, diam. 41.5mm.	40	LXXI	1905
H 391	Short piece of antler.	—	—	—
H 392	Short piece of antler.	—	—	—

The lengths are given in millimetres (76mm. = 3ins.). Pieces which are not straight have been measured along the outer curve.

IX. POINTED AND SOCKETED IMPLEMENTS.

The well worked implements, H 148, H 174 and H 183 (Plate LXVII) are probably goads, or spears, employed for driving cattle and other animals. They consist of straight tines of antler, varying in length from 62mm. (about 2½ins.) to 129mm. (about 5ins.). They are well worked and polished, especially at the pointed "business" end. H 148 and H 183 are deeply socketed. The socket of H 174 is shallow and of comparatively small diameter at the mouth, and it is quite possible that this specimen may have served the purpose of a knife-handle. Each of the three specimens has a transverse rivet-hole near the mouth of the

socket, piercing opposite sides,—for the purpose of securing the wooden shaft or handle of the implement.

Such objects as these are not infrequently met with on Late-Celtic and Romano-British sites, as for instance Ham Hill, S. Somerset (Taunton Mus.).

H 310 might also be included in this section, although it is a much rougher implement than those above mentioned (see details below).

H 148. Straight tine of a red-deer antler, cut off square at the butt, and having a smooth point; length 114mm. The wooden shaft was fitted into a long tapering hole measuring 15mm. in diam. at the mouth. The middle of the transverse rivet-hole is about 9mm. from the base.

Found on the fourth floor of Mound XXVII, 8ft. s.w. of the c.p., 1895.

Figured in Plate LXVII.

H 174. An implement of very similar design to H 148, 129mm. in length. It varies, however, from H 148 in being of oval instead of circular cross-section, and the longitudinal hole for the insertion of the shaft is small in proportion to the size and length of the tine.

Found among the timber, 16ft. w.s.w. of the c.p. of Mound V, 1896.

Figured in Plate LXVII.

H 183. Point of an antler, short and stout, and polished all over its surface, length 62mm. At the base the sides are somewhat bevelled giving a comparatively sharp margin to the deep socket, which is 16mm. in diam. at the mouth. The implement has been considerably repaired and a part of the rivet-hole is broken away.

Found in Mound IX, 4ft. n. of the c.p., 1896.

Figured in Plate LXVII.

H 310. Straight piece of tine roughly cut on the surfaces and having a well formed oval and deep socket; although there is no rivet-hole for attaching the implement to a wooden shaft it may perhaps have been intended for a rough spear, or goad, for driving animals.

Found on the first floor of Mound LXX, 3½ft. w.n.w. of the c.p., 1905.

Figured in *Proc. Som. Arch. Soc.*, LI, ii, Plate v, facing p. 95.

X. TIPS OF TINES.

These four specimens are described together because they appear to have been cut for a definite purpose. All of them are more or less polished; although the squared ends bear traces of saw-marks, they have become fairly smooth from prolonged use. H 35 and H 42 are figured in Plate LXVII. H 35 was found in Mound XLIV, H 43 in Mound LXII, and H 42 and H 46 in Mound LXV. The smallest specimen, H 35, is 38mm. in length, the longest, H 46, 58mm.; their average length is 48mm. (about 1¾ins.).

XI. WORKED OBJECTS OF ROE-DEER ANTLER (other than knife-handles).

There are fifty-one numbered specimens of roe-deer antler other than those described as handles of tools in this chapter (Section III). Of these sixteen

worked objects are described in this section, while the thirty-five tabulated specimens enumerated in the next section, No. XII, are either plain antlers or pieces which bear a few traces of human work. Remains of the roe-deer were not very plentiful in the Village (for details see the chapter on the Animal Remains).

The outstanding feature of the worked roe-deer antlers found in the Village is the occurrence of a perforated hole in the middle of the fork formed by the junction of the beam of the antler with the lower tine, and of a similar transverse hole which occasionally occurs at the point where the two upper tines branch. The former feature is met with in H 58 and H 230 (Plate LXVI), H 323 (Plate LXV), and also in the worked antler, H 209 (Plate LXVI) described as a knife-handle (p. 456) ;¹ H 172 (Plate LXVI) has a perforation at both forks ; whilst H 113 and H 184 (Plate LXVI) have incipient holes at the upper fork only. The purpose of these holes has not yet been explained, but these features are confined to the antlers of roe-deer.

The hook, H 261 (Plate LXVII), is decidedly interesting, and two or three of the objects described below may have been used in ornamenting pottery.

H 58. Upper part of the beam and two points of an antler, having a polished surface ; the smaller point is complete, the larger has the tip missing and is broken across a perforation about 5mm. in diam. The base is sawn off square and between it and the fork a circular hole (diam. 7mm.) has been cleanly bored ; in this respect it is similar to H 230 and H 323.

Found in Mound LXV, 5½ft. S.E. of the c.p., 1892.

Figured in Plate LXVI.

H 78. Small piece of split and charred antler, presumably a fragment of the beam just below and including the fork ; at the latter point the fragment is ornamented by two semi-circular grooves, below which there are two vertical grooves.

Found 21ft. E. of the c.p. of Mound LXII, 1892.

Figured in Plate LXVI.

H 113. Part of the beam and three points of a large antler ; the tips have been trimmed, and two of them are highly polished. In the position where the two upper tines meet a small circular depression is seen on one side, where no doubt the boring of a hole was begun but never completed, as in H 184.

Found 18ft. S. of the c.p. of Mound XLIX, 1894.

Figured in Plate LXVI.

H 125. The beam and one of the upper points of an antler, length 227mm. (nearly 9ins.), trimmed and polished over the whole surface, and forming a pointed implement which could have been used for various purposes. The two other points and the burr have been entirely

1. A similarly perforated piece of roe-deer antler was found with Late-Celtic objects at "Ham Turn," Ham Hill, S. Somerset (Taunton Mus.), in 1906. (*Proc. Som. Arch. Soc.*, LIII, i, 85).

A piece of antler with a transverse perforation at the fork may be seen in the prehistoric room at the London Museum.

A handle of roe-deer antler, with a slit presumably for the insertion of a tang, but having no rivet-hole was found at Standlake, Oxon. ; it is perforated at the fork. (*Proc. Soc. Antiq. Lond.*, 1 ser., IV, 97).

removed, giving an ogee curve to the shaft of the tool. Great care was taken in shaping the butt-end.

Found in Mound XLIX, 11½ft. S.E. of the c.p., 1894.

Figured in Plate LXVI.

H 172. Part of an antler which originally had three points, now fragmentary and calcined; in the fork at the junction of the beam with the lower tine is a circular perforation, diam. 5mm., and in a similar position where the two upper tines meet there is another hole of the same size.

Found in the peat 8ft. from the palisading, and 52ft. S. of the c.p. of Mound V, 1896.

Figured in Plate LXVI.

H 184. The upper half of an antler which had three points, the lower of which is broken off; one of the upper tines has been trimmed, polished and squared at the end, and the other appears to be broken across a perforation. In the fork at the junction of these tines a circular depression is seen, the beginning of a hole which was never completed (see H 113).

Found on the fifth floor of Mound IX, 7¾ft. N. of the c.p., 1896.

Figured in Plate LXVI.

H 190. Antler, length 232mm., having three points, the tip of only one being perfect; the upper point bears indications of cutting; the burr has been roughly removed by knife-cuts.

Found in Mound IX, 6½ft. N.N.W. of the c.p., 1896.

H 214. Shed antler of a young roe-deer, length 129mm., the two undeveloped points somewhat polished; just above the burr a transverse hole, diam. 5mm.

Found 17¼ft. N. of the c.p. of Mound V, 1896.

Figured in Plate LXVI.

H 230. Upper part of the beam of a large antler; the lower point remains and has been trimmed. Through the fork where the lower point joins the beam is a perforation (diam. 5.7mm.) placed rather lower than in the specimens similarly bored.

Found on the second floor of Mound IV, 12¾ft. S.S.W. of the c.p., 1896.

Figured in Plate LXVI.

H 235. Trimmed and polished antler, worked in a different manner to the other specimens, length 175mm. (6½ins.). The upper point is smooth and blunt; the two other points have been intentionally removed and polished down. Above the burr (which has been entirely cut away) the beam is notched for a maximum length of 28mm., rough knife-cuts remaining. In the position of the lower fork is a perforation, 4.5mm. in diam.

Found on the level of the second floor, 11½ft. W.S.W. of the c.p. of Mound V, 1896.

Figured in Plate LXVI.

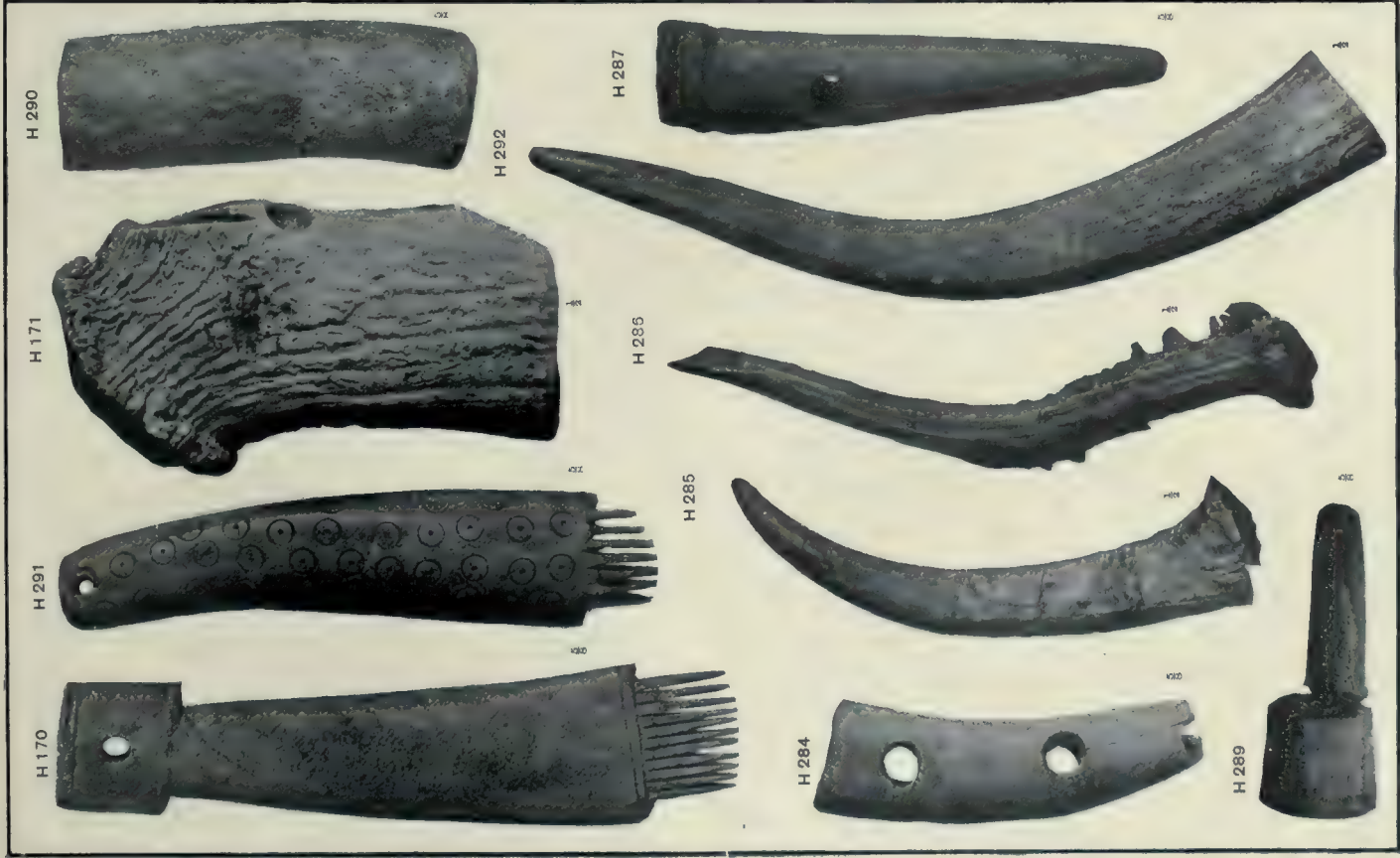
H 257. Awl, consisting of a small polished antler having an ogee curve, length 140mm.; the lower point and the burr have been removed.

Found in Mound XXXVIII, 11ft. S.E. of the c.p., 1898.

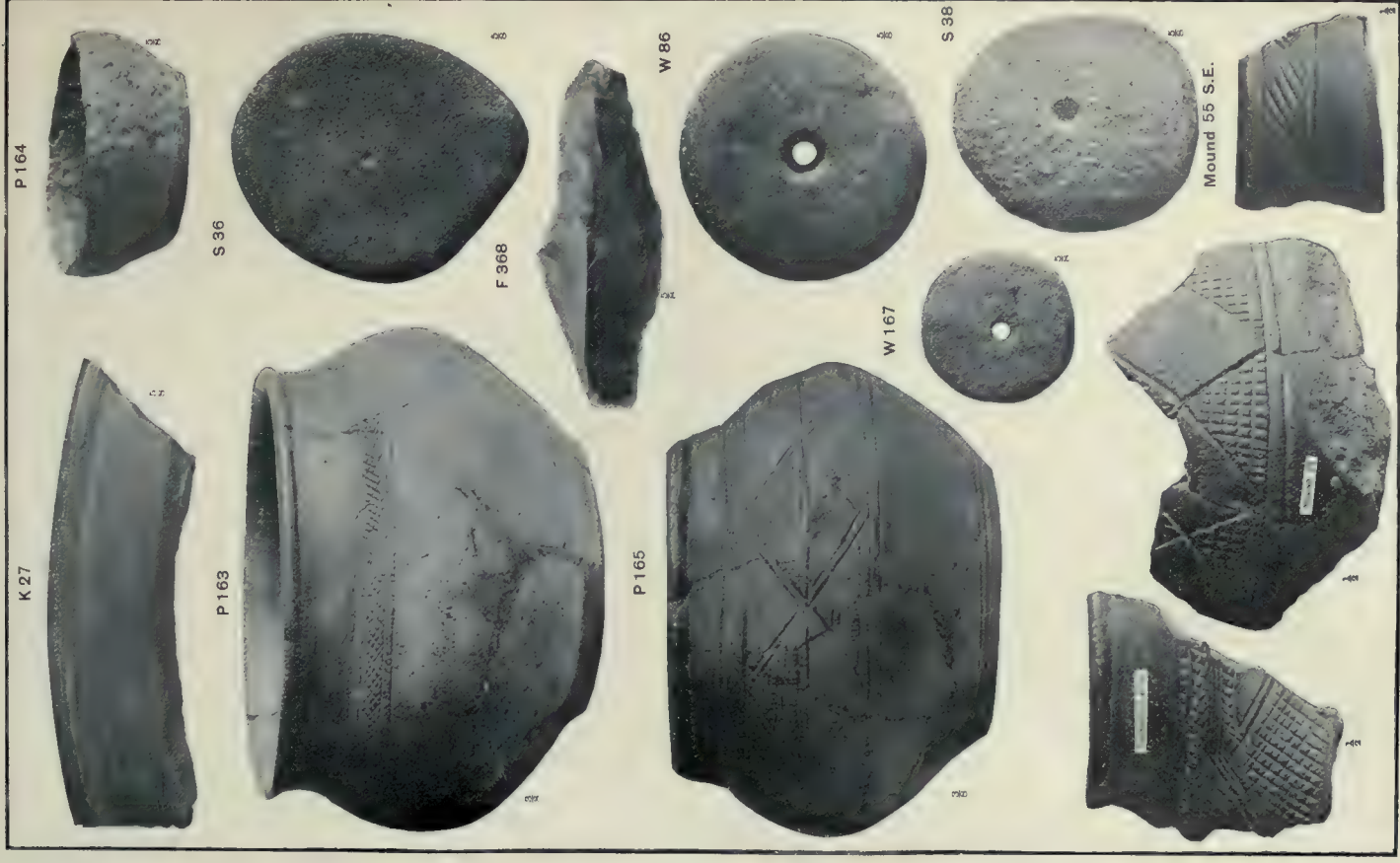
Figured in Plate LXVI.

H 261. Worked antler, presumably of roe-deer, which appears to be abnormally developed, the only remaining tine forming a hook. The beam has been more or less trimmed and has become smooth owing to prolonged use. The hooked portion has been nicely worked and highly polished. All the rough parts of the burr have been removed, but enough remains to leave an enlargement here, and a cord tied tightly round the beam could not slip over the burr-end.

It is possible that this object may have been used as a meat-hook, for which purpose, however, less labour might have been expended on the implement. It might have been used in



POTTERY, AND OBJECTS OF ANTLER, KIMMERIDGE SHALE (K27—See p. 261), AND STONE.
FOUND IN THE GLASTONBURY LAKE VILLAGE.



many ways, and it reminds one of a fisherman's gaff-hook. It does not seem to be large enough for a reaper's left-hand implement, and a bent piece of wood would have served the purpose equally well. A friend of Mr. Balch's in Nova Scotia suggests its use as a release for a leash.

Found near the wall-posts of Mound XXXVIII, 7ft. s.w. of the c.p., 1898.

Figured in Plate LXVII.

H 286. Shed antler, length 175mm. ($6\frac{7}{8}$ ins.), finely worked to a smooth point; probably used as a modelling-tool.

Found in Mound LV on the level of the second floor, $3\frac{1}{2}$ ft. s.e. of the centre of Hearth i, 1904.

Figured in Plate LXVIII.

H 315. Piece of antler, white from calcination; the small projecting tine has been worked to a smooth point; this tool may have been used in ornamenting pottery.

Found below the clay floors of Mound LXX, $10\frac{1}{2}$ ft. w.n.w. of the c.p., 1905.

H 323. Worked antler, length 214mm. ($8\frac{3}{8}$ ins.), the two branching tines smooth at the tips; at their junction a perforation has been neatly bored (max. diam. 5mm.). From opposite sides of the burr (which has been partly removed) perforations have been begun to a considerable depth, but they are not bored exactly in the same direction.

Found on the timberwork substructure under the clay of Mound LXXI, 12ft. s.w. of the c.p., 1905

Figured in Plate LXV.

H 343. Part of an antler, length 145mm., the beam sawn off square above the burr and the lower of the two points removed. The base has been perforated longitudinally, and this hole meets a lateral one bored on the side of the beam, 13mm. above the butt-end. The point which remains is polished, and the tool may probably have been used for ornamenting pottery.

Found on the second floor of Mound LXXIV, 6ft. e.n.e. of the c.p., 1906.

Figured in Plate LXV.

XII. ANTLERS AND PARTS OF ANTLERS OF ROE-DEER, SOME OF WHICH ARE SLIGHTLY WORKED.

(None of these are figured).

No.	DESCRIPTION.	MOUND.	YEAR FOUND.
H 1	Shed antler, complete, the three points smooth.	XXII	1893
H 26	Antler of slain deer.	XXIII	1893
H 44	Polished point of tine.	LXII	1892
H 82	Straight piece of polished antler, length 33mm.	LXIV	1892
H 89	Part of slender tine, polished and calcined.	LXII	1892
H 115	Shed antler, the tip of one of the three points missing ; slight cuts on the beam.	XLIX	1894
H 116	Part of antler, having burr removed ; knife-cuts on the beam.	XLIX	1894
H 118	Shed antler, stout and complete, the three points more or less polished.	XLIX	1894
H 119	Shed antler, with polished points.	XLI	1894
H 127	Shed antler, large, incomplete.	XLIX	1894
H 128	Shed antler, the remaining tine polished.	XLIX	1894
H 142 ³	Antler, with two complete tines and one broken.	XXVII ¹	1895
H 159	Fragment, worked smooth.	—	—
H 173	Shed antler, the upper of the three points cut off.	V	1896
H 215	Greater part of antler of slain deer.	V ²	1896
H 223	Piece of antler, cut.	V	1896
H 234	Piece of antler, cut.	V ²	1896
H 244	Shed antler, complete ; three points.	I	1897
H 251	Piece of charred antler.	IV	1897
H 253 ⁴	Shed antler, one of the three points complete.	II	1897
H 258	Part of a shed antler.	XXVI	1898
H 269	Greater part of an antler, removed from the skull by means of a saw.	XXXVII	1898
H 293	Small piece of antler.	LXXVIII	1904
H 301	Piece of worked antler.	LXIX ¹	1905
H 319	Part of a small antler, points missing, showing knife-cuts.	LXXI ¹	1905
H 365	Antler, the two remaining points smooth.	XXVI	—
H 368	Part of a small tine, weathered.	—	—
H 374	Short piece of antler.	—	—
H 375	Small polished tine.	—	—
H 376	Part of an antler, surface decayed.	—	—
H 378	Fragment of antler.	—	—
H 380	Antler, worked and sawn.	VII	—
H 384	Two smooth points.	—	—
H 385	Part of an antler in fragments, with traces of a perforation ; weathered.	IX	—
H 389	Worked point.	—	—

XIII. WORKED TINES GENERALLY SAWN OFF AT THE BUTT-END.

In this section forty-three specimens have been included and among them are some carefully worked tines, a few of which are perhaps knife-handles in process of formation. All the specimens are apparently of red-deer antler. For brevity

1. Found on Floor i.
2. Found on Floor ii.

3. In British Museum.
4. In Taunton Museum.

some of the specimens are described as being sawn at the larger or butt end, meaning that the tines have been sawn through more or less transversely, and square with the general line of the tine.

Twelve of these worked tines have been figured, viz., H 48, 92, 138, 166, 188, 204, 212, 268, 285, 292, 339 and 346, Plates LXV—LXVIII.

No.	PLATE NUMBER.	DESCRIPTION.	MOUND.	YEAR.
H 6	—	Point of a tine.	XXII	1893
H 17	—	Small, deeply curved tine, worked, charred at larger end.	XLV	1893
H 30	—	Tine, polished chiefly towards the tip, sawn at larger end ; length 145mm.	XLII	1893
H 31	—	Slender tine, sawn at larger end ; polished tip ; length 179mm.	XLII	1893
H 40	—	Part of a polished tine, sawn at smaller end ; broken at larger end ; length 106mm.	XLIII	1893
H 41	—	Part of a polished tine, broken off at the larger end ; length 119mm.	LXII	1892
H 48	LXVI	Nicely worked tine, knife-trimmed in places, and perhaps designed for a knife-handle ; it is highly polished at the butt-end, and has been neatly sawn off quite square with the line of the tine ; length 196mm. (7 $\frac{3}{4}$ ins.).	LXIII	1892
H 49	—	Tine, polished and covered with tool-marks, length 184mm. ; the squared butt-end in this case appears to be knife-cut, and not sawn.	LXIII	1892
H 50	—	Tine (probably brow), sawn off from the beam ; the tip is highly polished ; length 305mm. (12ins.).	LXIV	1892
H 51	—	Tine, sawn off from the beam ; tip polished ; length 224mm.	LXII	1892
H 52	—	Long tine of abnormal growth, length 395mm. (15 $\frac{1}{2}$ ins.) ; the two snags at the end appear to be polished ; the larger half is split in the position of a longitudinal slit (length 60mm.).	LXIV	1892
H 92	LXVII	Stout tine, length 149mm., highly polished ; hacked off at the larger end where a part of the antler has been sliced off on one side ; this tool shows prolonged use, —perhaps in leather-working.	VI	1894
H 102	—	Worked tine with sharp tip ; roughly sawn at larger end ; length 153mm.	XLIX	1894
H 103	—	Tine, roughly sawn at larger end ; the smaller end is polished and has a small circular depression 22mm. from the tip ; length 164mm.	L	1894
H 126	—	Pointed end of tine, weathered ; length 91mm.	XLVIII	1894
H 134	—	Tine with smooth point ; sawn at larger end ; length 108mm.	XXVII	1895
H 135	—	Point of a tine, polished ; roughly cut off at the butt-end.	XXVII	1895
H 138	LXVII	Tine, trimmed and smoothed, length 162mm. ; sawn square at the butt-end ; at a short distance from this end on the concave surface a tapering hole has been drilled at least half-way through the thickness of the tine	XXVII	1895
H 152	—	Damaged tine, worked and polished ; roughly sawn at larger end, tip missing ; length 115mm.	XXVII	1895
H 156	—	Point of a tine, length 78mm. ; roughly hacked off at the larger end.	XVIII	1895
H 166	LXVII	Large tine, polished except for a short distance at the larger end ; sawn off square at the butt ; length 298mm. (11 $\frac{3}{4}$ ins.).	LIX	1895

No.	PLATE NUMBER.	DESCRIPTION.	MOUND.	YEAR.
H 169	—	Tine, sawn at larger end; point removed.	LVI	1896
H 177	—	Tine bearing some indications of polish, length 183mm.; at the larger end there is an oval depression in the cancellous tissue.	X	1896
H 188	LXVII	Straight tine, tooled and polished, length 174mm.; at the larger end it was partly sawn through and then broken off.	IX	1896
H 192	—	Slender tine having an ogee curve, considerably polished; length 173mm.	IX	1896
H 196	—	Tine, sawn at larger end, and smooth at the point; length 137mm.	IX	1896
H 203	—	Pointed end of a tine, somewhat polished.	VI	1896
H 204	LXVII	Tine, somewhat weathered, length 124mm.; sawn at the butt-end; bevelled on opposite faces at the point; near the middle and towards the point it is drilled by a hole penetrating about half the thickness of the tine; possibly a "cheek-piece" in process of formation	VI	1896
H 205	—	Point of tine, length 79mm.; knife-cut at the butt-end, and bevelled round the sides in this position.	VI	1896
H 212	LXVII	Polished snag, length 87mm.; sawn at the larger end, near which there is a transverse slit (width 3.5mm.) sawn half-way through the thickness of the tine.	IV	1896
H 224	—	Worked tine, fairly smooth, sawn at the larger end; length 138mm.	V	1896
H 228	—	Polished tine, weathered; length 164mm.	IV	1896
H 233	—	Worked tine, point missing, length 212mm.; the larger end and part of the shaft have been considerably knife-cut.	V ¹	1896
H 254	—	Worked tine, nicely squared at the butt-end, and polished in places; length 190mm.; repaired; similar to H 48.	IV	1897
H 268	LXVII	Large part of an antler, length in a straight line 253mm. (10ins.); sawn off square at the base; one of the upper tines removed by a saw; the other tine and the whole antler are considerably polished, and the surfaces knife-cut and deeply "pecked" in places.	XVI ⁸	1898
H 276	—	Point of a tine, cut and smooth.	XXXIII ¹	1898
H 277	—	Tine, worn and scored at the tip; sawn off somewhat obliquely at the butt-end; length 227mm. (9ins.).	XXX ²	1898
H 285 ⁴	LXVIII	Tine found in several fragments; smooth at the point; sawn at the larger end.	LVIII ²	1904
H 292 ⁴	LXVIII	Large tine, about 9ins. in length, sawn off square at the butt; point somewhat polished.	LXIV	1904
H 339	LXV	Piece of antler, well preserved, sawn at the base; the tine and the little snag are polished; length 157mm.	LXVII	1906
H 346	LXVII	Tine, split at the larger end, length 260mm. (10½ins.); it has been "stabbed" over the greater part of its surface by deep, irregular incisions.	LXXII	1906
H 349	—	Straight tine, sawn square at the butt-end; teeth-marks are seen on the polished point, the result of gnawing; length 144mm.	LXXIV ³	1906
H 383	—	Large smooth tine repaired from fragments, length 300mm. (11¾ins.); at the sawn butt-end some of the cancellous tissue has been removed.	VII	—

1. Found on Floor i. 2. Found on Floor ii. 3. Found on Floor iii. 4. In the Brit. Mus.

XIV. PIECES OF ANTLER SAWN AND OTHERWISE WORKED
(Miscellaneous).

A variety of oddments has been brought together in this Section. Nine of them have been fully described, and forty-four of lesser importance have been tabulated for the purposes of reference. It was not considered necessary to figure more than five of these specimens, viz., H 84, 180, 239, 321 and 333 (Plates LXV and LXVII). The more interesting miscellaneous objects of antler have artificial perforations, and these are described under Section VII of this chapter.

Some of the tines mentioned here might, perhaps, in a few cases, have been included in Section XIII, but generally speaking all the cut tines in the latter section have the points complete.

H 54. Greater part of a small shed antler of red-deer, the beam, burr, and the brow- and bez-tines remaining ; the brow-tine is much split lengthwise, and it is smooth at the point. It cannot be regarded as an implement.

Found in Mound XLII, 10½ft. N.W. of the c.p., 1893.

H 84. Worked tine, length 164mm., rounded at the butt-end ; the other end is double-pointed, a V-shaped notch having been cut to a depth of 5mm. ; these points are quite blunt.

Found in Mound LXII, 8ft. W.N.W. of the c.p., 1892.

Figured in Plate LXVII.

H 180. Disc consisting of the burr of a shed antler of red-deer, of oval outline, 80 by 68mm. ; it has been roughly sawn through at the base of the beam.¹

Found on the second floor of Mound XI, 11ft. S.W. of the c.p., 1896.

Figured in Plate LXVII. (Scale ½ linear).

H 229. Beam of an antler of red-deer, length 336mm. (13¼ins.), sawn off obliquely above the burr ; the two branching tines at the top have been neatly sawn off transversely, and the cancellous tissue in both places removed to a depth of about half-an-inch.

Found in Mound IV, 9½ft. S. of the c.p., 1896.

H 239. Greater part of the crown of a red-deer antler, sawn across at the top of the beam close to the lower fork ; parts of two tines have also been sawn off, and the snag at the top is well polished but broken at the tip ; deep knife-cuts are seen on one edge ; length in a straight line 270mm. (10½ins.).

Found 20½ft. S.E. of the c.p. of Mound V, 1896.

Figured in Plate LXVII.

H 260. Pointed object carved from a tine, the tip of round section ; richly ornamented with oblique and horizontal lines. Unfortunately this object is fragmentary and incomplete ; it appears to have a concavo-convex cross-section.

Found on the first floor of Mound XLI, 10ft. S.W. of the c.p., 1898.

H 321. Large straight piece of red-deer antler, length 315mm. (12½ins.), somewhat in the

1. A similar disc (but having a phallic emblem carved in relief) was found at Newstead (Curle's "Roman Frontier Post," Plate lxxxiv, fig. 14).

Such a disc as that found in the Lake-village and perforated for use as a spindle-whorl was found in Wookey Hole (Balch, Plate xxiii, A, no. 1 ; *Trans. Bristol and Glos. Arch. Soc.*, XXXVI, plate facing p. 21, fig. 7).

form of a truncheon. The grip has been rounded to an average diam. of 23mm., at the base of which is a roughly trimmed knob, or pommel, projecting on one side (max. width 47mm).—a stop to prevent the handle from slipping from the user's grasp. The head has been sawn off square, and for some distance down the shaft a rectangular section has been maintained, the four sides near the top averaging 33mm. in width. Knife-cuts are observable in these parts. The "head" shows little signs of wear or rough usage, and as there is no evidence of its having been used for any beating purpose, we can only surmise that the object was intended for the handle of a large cutting implement.

Found on the second floor of Mound LXXI, 9½ft. w. of the c.p., 1905.

Figured in Plate LXV.

H 333. Large piece of antler of red-deer, with portion of one tine projecting, the remainder having been sawn off; the object was also sawn through at top and bottom. Midway between the "spring" of the tine and its squared termination an encircling groove has been cut, varying in width from 18 to 29mm., the outer coating of the tine being removed to a depth varying from 1 to 4mm. We have been unable to ascertain for what purpose this large implement was used.¹

Found in the black earth near the margin of the clay, Mound LXXII, 16ft. E. of the c.p., 1905.

Figured in Plate LXV.

H 357. Portion of an object of red-deer antler, of unknown use; length in a straight line 182mm.; max. width 45.5mm.; section concavo-convex. Along two sides and at one end the edges have been carefully sawn; the other end is broken. The face of this broad antler has been smoothed to a certain extent; near the top and bottom are two rather deep transverse saw-cuts, and near the middle a circular depression (not a perforation) 7.5mm. in diam.

Found on the third floor of Mound LXXIX, 14ft. S.E. of the c.p., 1906.

No.	DESCRIPTION.	MOUND.	YEAR.
H 16	Two fragments of a worked object, having a deep bead at one end.	XXII	1893
H 25	Piece of smooth antler of plano-convex cross-section, with a raised "bead" at one end; perhaps the butt-end of a weaving-comb.	XXIV	1893
H 47	Piece of a tine, weathered; length 47mm.	LXV	1892
H 55	Greater part of a tine of red-deer, sawn through at one end; calcined to a pale bluish-grey tint.	LXII	1892
H 56	Piece of cut antler with a notch on one side; length 59mm.	LXV	1892
H 57	Piece of antler, about 4½ins. long, polished, calcined and weathered; perhaps the end of a large handle.	LXII	1892
H 90	Part of a large tine of red-deer, much damaged and worn.	XLII	1893
H 94	Piece of a tine, length 151mm.; sawn off at the smaller end; the larger end is somewhat bevelled on opposite faces; it has several transverse knife-cuts, and is roughly "pecked" on one side.	XLVIII	1894
H 104	Piece of a tine, smooth and cut off square at both ends, length 68mm.; it appears to have been hollowed at the larger end where it is broken.	XXV	1894
H 105	Part of the crown of an antler, with part of a tine remaining—sawn off square and polished in places; length 140mm.	XXI	1894

1. An object of similar outline and size from Lochlee Crannog, Tarbolton, has been figured. (*L.D. of E.*, 413, fig. 142, bottom right-hand corner).

No.	DESCRIPTION.	MOUND.	YEAR.
H 131	Beam of a large antler roughly sawn through above the brow and bez tines ; crown broken off ; length in straight line 320mm. (12½ins) ; least circumference of beam 156mm.	XXVII	1895
H 140	Short section of red-deer antler from the lower part of the beam ; at the sawn end there is a circular hole in the middle of the tissue which does not penetrate through ; the other end is much weathered and has been considerably battered.	XXVII	1895
H 145	Greater part of a tine of red-deer, sawn through at the butt-end.	XXVII	1895
H 157	Part of a tine of red-deer, roughly trimmed.	XVIII	1895
H 158	Part of a tine repaired from several fragments, sawn off square at one end ; smooth and showing tool-marks (similar to H 195).	XVIII	1895
H 161	Greater part of a straight tine of red-deer, broken off at the point and sawn through at the butt-end.	XVIII	1895
H 195	Tine of red-deer, cut in the form of a horse's "cheek-piece," but having no perforation ; smooth and weathered and now much repaired ; length 109mm.	IX	1896
H 206	Part of a large antler of red-deer with a sawn notch at one end ; sharpened and charred at the other end.	IV	1896
H 259	Fragmentary piece of cut antler, burnt ; probably part of a hammer.	XXVIII	1898
H 279	Four fragments of an incomplete object.	—	1895-6
H 288	Piece of worked antler of circular section, diam. 20mm., length 15.5mm. ; sawn off square at the complete end ; notched near the broken end.	LXXIX	1904
H 296 ¹	Small pieces of antler split down the middle and knobbed at one end ; charred to a bluish - white colour. (The pieces do not join).	LIII	1898 and 1905
H 335 ¹			
H 297	Two portions of a worked antler, socketed at the butt-end.	LXIX	1905
H 300	Piece of a tine worked to a point.	LXIX	1905
H 308	Part of a smooth tine of red-deer, of oval section, sawn through at the larger end ; the other end has the point missing.	LXX	1905
H 317	Greater part of a large tine of red-deer, repaired from many fragments ; marks of the saw at the larger end ; the point is smooth and shows oblique tool-marks.	LXXI	1905
H 328	Incomplete object, very smooth, and showing signs of prolonged use.	LXXXI	1905
H 330	Small piece of burnt antler.	LXXI	1905
H 331	Portion of a small, smooth tine, charred ; it may have been perforated transversely ; somewhat similar to H 303, 304 and 305.	LXX	1905
H 332	Small piece of smooth antler.	LXXII	1905
H 345	Fragments of smooth antler, calcined.	LXXII	1906
H 347	Piece of worked but much decayed tine of red-deer ; length 215mm.	LXXII	1906
H 353	Piece of worked antler with knife-cuts.	LXXVI	1906
H 367	Worked tine of red-deer, much broken ; length 145mm.	—	—
H 371	Fragment of sawn antler of red-deer.	—	—
H 373	Fragment of red-deer antler, polished.	—	—
H 377	Sawn piece of red-deer antler, with a beaded edge at one end.	—	—
H 379	Sawn piece of red-deer antler.	XXVII	—
H 387	Piece of red-deer antler, much weathered and broken.	IX	—
H 388	Sawn piece of red-deer antler, weathered.	XVI	—
H 390	Part of large antler of red-deer, sawn.	XXVI	—
H 393	Tine of red-deer, sawn at butt, point missing.	—	—
H 394	Short piece of tine of red-deer, with a slit sawn longitudinally.	—	—

1. Figured in *Proc. Som. Arch. Soc.*, LI, ii, Plate v, facing p. 95.

CHAPTER XV.

TUSKS AND TEETH, PERFORATED OR OTHERWISE WORKED.

By H. ST. GEORGE GRAY.

IN this chapter sixteen tusks and teeth are described, which are numbered from T 1 to T 14 (T 10 and T 13 each consisting of two specimens). Nine perforated tusks of boar were found in the Village, and four canine teeth of large dog were bored for suspension. Similar pendants have been discovered in the Meare Lake-village.

A large number of boars' tusks were collected in the excavations, but a very small proportion of them show any signs of having being "worked,"¹ and beyond single perforations near the base of the tusk, either through one or both faces, there are no traces of intentional alteration of the natural tusk,² beyond very

1. In *Archæologia*, LXIV, 342, a suggestion is made that boars' tusks may have been used in shaping pottery.

2. In some countries boars' tusks are used as knives, but there is no evidence of any tusks from the Village having been employed for cutting purposes. Such a knife was found with Bronze Age antiquities in Heathery Burn Cave (*Archæologia*, LIV, 107). Similar knives have occurred in some of the Swiss Lake Dwellings (Keller, *L.D. of S.*, I, 30 ; II, Plate xx, fig. 16).

Implements, etc., made from boars' tusks have been found in British barrows. In a tumulus near Waterhouses a worked tusk was discovered in association with a human skeleton (Bateman's "Ten Years' Diggings," 1861, p. 131).

The barrows of the East Riding of Yorkshire have produced boars' tusks. A worked knife made from a tusk was found upon the right femur of a human skeleton at Cowlam (Greenwell's "British Barrows," 215). In a tumulus in the parish of Folkton a curved pin made from a tusk was discovered in front of the chest of the skeleton of a young man ; it has three perforations close to each other and the remains of a fourth hole. "From its form, and the place where it was found, there can be little doubt that it had served to fasten the dress of the buried person." Below the head a tusk trimmed probably as a knife was found (Greenwell, 138, and fig. 94). Another tusk implement was found in a barrow in the parish of Langton (Greenwell, 274, and fig. 9, p. 35).

Worked and natural tusks of boar are also mentioned and figured by J. R. Mortimer as occurring in the barrows of East Yorkshire ("Forty Years' Researches in Burial Mounds of E. Yorks," Plates vii, xiv, lxiii, lxvi).

In association with a human skeleton in a barrow on Upton Lovel Down, several perforated tusks of boar were found (*Archæologia*, XV, Plate ii, fig. 2).

Boars' tusks, including one perforated, were found in a barrow on Ridgeway Hill, Dorset (*Archæologia*, XLIII, 540).

slight evidence of wear and the cuts, mentioned below, on T 6 and T 10 (Fig. 158). In T 6 the countersinking of the hole on both faces is very evident. The tusks, T 3 and T 5, have also been figured; the latter is neatly perforated; the former has not been worked in any way, but is a tusk of enormous size measuring no less than $9\frac{1}{4}$ ins. along the outer curve, and for that reason it has been drawn.



FIG. 158.—BOARS' TUSKS AND DOGS' TEETH, PERFORATED OR OTHERWISE WORKED, GLASTONBURY LAKE VILLAGE. (T 3 is the largest tusk found in the Village, but it is not worked).

ŷ. & D. Frater, Edinburgh, del.

Of the perforated teeth, the two numbered T 13 are here illustrated, and T 12, a calcined specimen, is represented in Fig. 148.

There are well founded reasons for believing that these perforated tusks and teeth were used for personal adornment, either in the form of pendants or as parts of necklaces.¹ It is not improbable that they served the double purpose of ornament and amulet, and may perhaps have been regarded as talismanic. No

1. Keller describes these objects as needles, probably for sewing the garments together (*L.D. of S.*, 1st edit., p. 34).

doubt the "evil eye" had to be warded off then as in later days. Possibly such amulets were considered by the villagers to possess prophylactic properties, but, without more evidence on these points, it will be wise to refrain from theorizing.

The boar's tusk pendant, both single and double, is a widespread personal ornament, and is common in the Melanesian area of the Pacific, especially in the Fiji Islands, New Guinea, New Hebrides, and the islands s.e. of New Guinea. Such pendants are sometimes used in various parts of Africa, amongst the Haida Indians of North America, and by the Nagas of Assam. Boars' tusks are regarded by Tibetans as a protection against all kinds of sickness, and were used in magic.¹ They are met with in Egypt, Palestine, and Asia Minor. In North Africa (including Tunis) and Southern Europe the boar's tusk mounted for suspension is a very common ornament-charm, though it is hung on horses more than on human beings. These tusks are used for horse ornaments in Asia Minor, and there is good evidence that the virtue of such amulets lies in the tusk itself.²

In New Guinea the single tusk as well as two tusks joined together are employed as charms. Among the Elema tribe of the Papuan Gulf the boar's tusk is not so much coveted as personal ornament, as for the courage and daring which it is supposed to contain and to be capable of imparting to anyone who secures it.³

Double boar's tusk ornaments are probably commoner in Southern Europe than the single boar's tusk pendant, and among other localities from whence they can be procured are Italy (including Naples), Austria, Turkey, Greece, Albania, Bosnia, Montenegro, Serbia and Crete. Those specially interested in the present day distribution of boars' tusks as ornaments and charms should refer to Professor W. Ridgeway's paper on "The Origin of the Turkish Crescent."⁴

Perforated boars' tusks and dogs' teeth have been found associated with Late-Celtic remains in Britain. Boars' tusks, seven perforated and six unpierced, were discovered in Harborough Cave, near Brassington;⁵ they measure from $2\frac{1}{2}$ to 4 ins. in length. A wolf's tooth and a hyæna's tooth, both perforated, were also found, and were probably worn on a necklace. A canine tooth of dog and a boar's tusk with two perforations were found with other remains of Late-Celtic type at Leicester, about 1860.⁶ Tusks of boar drilled for suspension have been collected on Hod Hill, Dorset (Brit. Mus.),⁷ at York (York Mus.), and at Dog

1. *Journ. Anthropol. Inst.*, XXXIX, 392.

2. *Ibid.*, XXXVIII, 243.

3. *Ibid.*, XXXIX, 257.

4. *Ibid.*, XXXVIII, 241-258. See also "The Evil Eye," by F. T. Elworthy, F.S.A., p. 204.

5. *Journ. Derbysh. Arch. and N.H. Soc.*, XXXI, plate facing p. 100, fig. 4.

6. *Proc. Soc. Antiq. Lond.*, 2 ser., I, 246, 249.

7. *Cat. Durdun Coll.* (Payne), pp. 31, 46.

Holes, Warton Crag, Lancs.¹ A dog's tooth pendant was found in a cave near Settle, Yorks (Brit. Mus.).² Perforated canine teeth of wolf were discovered in a barrow at South Newton.³ A few perforated canine teeth of dog were found with antiquities of the Bronze Age in Heathery Burn Cave, Durham; also three drilled incisors of horse (Greenwell Coll., Brit. Mus.).⁴ Another perforated canine tooth was found at Casterley Camp (Devizes Mus.).⁵ At Maumbury Rings, Dorchester, the writer found a canine tooth of horse with a natural perforation at the root and near it a hole bored laterally meeting the other perforation—an object probably worn by suspension as an ornament.⁶

Perforated and plain tusks have frequently been discovered with human interments in tumuli (see footnote, p. 480). Among the remains from Richborough was a boar's tusk mounted in bronze for suspension.⁷ Two boars' tusks were found in association with a British tin coin in Pit 29, Mount Caburn Camp.⁸ Perforated teeth of a carnivorous animal were found in graves in the Anglo-Saxon cemetery at Sleaford.⁹ A crescent-shaped ornament formed of two boars' tusks with bronze mounting, having figures of a boar and dogs upon it, was found on the site of a Roman villa at North Wraxhall, Wilts, 1859.¹⁰

Perforated tusks and teeth have also been found in the Swiss Lake Dwellings,¹¹ besides implements and tools formed from the tusk of the boar. Space, however, permits of only a few instances being given. At Meilen a bear's tooth was found perforated near the root;¹² perforated boars' tusks were found at Moosseedorf;¹³ a bear's tooth and wolves' teeth, with holes (countersunk), were discovered at St. Aubin;¹⁴ perforated dogs' or wolves' teeth were found at Wangen¹⁵ and Nussdorf.¹⁶

1. *Trans. Lancs. and Chesh. Antiq. Soc.*, XXX.
2. *Collect. Antiqua*, I, Plate xxix, fig. 4. (See also Bähr, *Gräber der Liven*, Plate III, ix and x).
3. *Archæologia*, XLIII, 540.
4. *Ibid.*, LIV, 106.
5. *Wilts Arch. Mag.*, XXXVIII, Plate ix, fig. 7.
6. *Proc. Dor. F. Club*, XXXI, 250; also *Third Report, Maumbury Rings*, 1910 (issued separately).
7. "Antiquities of Richborough," 110.
8. *Archæologia*, XLVI, 485.
9. *Ibid.*, L, 391, 401, 406. One tooth is suspended from a bronze loop, Plate xxiv, fig. 5.
10. *Wilts Arch. Mag.*, VII, 70, 75, and Plate iv, fig. 11. (Compare with similar ornament worn by an Arab chief on the breast of his horse, *Ibid.*, figs. 12, 13).
11. *Proc. Soc. Antiq. Lond.*, VI, 485.
12. *L.D. of S.*, Plate iii, fig. 6.
13. *Ibid.*, Plate v, figs. 6, 7, 15, 16; Plate xiv, fig. 12.
14. *Ibid.*, Plate xlv, figs. 11, 13, 14.
15. *Ibid.*, Plate xiv, fig. 3.
16. *Ibid.*, Plate xxviii, fig. 19.

DETAILED DESCRIPTION OF THE TUSKS AND TEETH, PERFORATED OR
OTHERWISE WORKED, FOUND IN THE LAKE VILLAGE.

T 1. Boar's tusk, 136mm. in length on the outer curve, with a small irregular hole near the base for suspension.

Found 7ft. to the N.E. of the c.p. of Mound XXIV, 1893.

T 2. Boar's tusk, broken off at the base where it is perforated with a hole 6.2mm. in diam. Found 5ft. to the N. of the c.p. of Mound XLIV, 1893.

This specimen is now in the British Museum.

T 3. The largest boar's tusk found in the Village, broken off at the base; length on the outer curve 236mm. (9½ins.); max. width 27.8mm.; max. depth 22.2mm. This specimen has no perforation, nor is it otherwise worked.

Found in the peat, 18ft. to the E. of the c.p. of Mound XLVIII, 1894.

Illustrated in Fig. 158.

T 4. Boar's tusk, 114mm. in length along the outer curve; perforated near the base on one face only,—diam. of hole 4mm.

Found 11½ft. to the S.E. of the c.p. of Mound XXVII, 1895.

T 5. Boar's tusk, small, with hole for suspension (diam. 4mm.) near the base through both faces.

Found 8½ft. to the E.S.E. of the c.p. of Mound VI, 1896.

Illustrated in Fig. 158.

T 6. Boar's tusk, well preserved, with a perforation close to the base (max. diam. 6mm.) and a well defined notch cut on the edge of the inner curve; the hole on both faces is counter sunk; length of the tusk on the outer curve 126mm.

Found on the first floor of Mound IV, 10½ft. to the N. of the c.p., 1896.

Illustrated in Fig. 158.

T 7. Part of a boar's tusk, broken across the perforation.

Found 16ft. to the S.S.E. of the c.p. of Mound V, 1896.

T 8. Broken tusk of boar, with perforation 3.7mm. in diam.

Found 15½ft. to the N.N.W. of the c.p. of Mound XXIX, 1898.

T 9. Boar's tusk broken near the base across a perforation about 3.7mm. in diam.

Found 12ft. to the N.W. of the c.p. of Mound XXXVII, 1898.

T 10. Two large tusks of boar, measuring in their present condition 198 and 203mm. respectively in length on the outer curve. The shorter one has a concave and bevelled base cut transversely; the other specimen is not worked.

Found on the second floor of Mound LXIV, 7ft. to the S.E. of the c.p., 1892.

The worked one is illustrated in Fig. 158.

T 11. Boar's tusk, broken at the base on one side, the perforation on the other face remaining complete (diam. 4mm.), but not perfectly circular.

Found on the second floor of Mound LV, near the E. margin, 1904.

This specimen is now in Taunton Castle Museum.

T 12. Dog's canine tooth, calcined; fractured through a perforation measuring 3.9mm. in diam.

Found under the clay floors of Mound LXX, 6½ft. to the E. of the c.p., 1905.

Illustrated in Fig. 148.

T 13. Two canine teeth of dog, both perforated with a hole for suspension ; diam. of holes 3.4 and 4.3mm. respectively ; length of teeth from point to point 41.2 and 43.2mm. respectively.

Found 9½ft. to the s.e. of the c.p. of Mound VI, 1896.

Illustrated in Fig. 158.

T 14. Canine tooth of dog, perforated ; the hole is roughly countersunk on both faces, 4.5mm. in max. diam. ; length of tooth 40mm.

Found 7ft. to the n.w. of the c.p. of Mound IX, 1896.

CHAPTER XVI.

POTTERY.

By ARTHUR BULLEID, F.S.A.

I. INTRODUCTORY REMARKS.

DURING the sixteen years the excavations at the Lake Village were in progress, only some half-a-dozen vessels were found intact, but several tons' weight of pottery sherds and broken vases in more or less perfect condition were unearthed. It has been possible to piece together many of the latter and there is still a considerable number requiring restoration.

With reference to the treatment of the pottery during the excavations, the fragments procured from each mound or area of ground were after drying packed in small parcels or bags, each package being labelled with its respective mound and position. The whole collection was removed to a storage room fitted with shelving, rented for the purpose by the Glastonbury Antiquarian Society to await future examination. This has now been carried out and the results of the work are given in the following pages.

Out of the ninety mounds or areas of clay of which the Village consisted, statistics have been made of the following fifty-two, *i.e.*, Nos. 1 to 3, 5 to 9, 11 to 19, 21 to 26, 29, 30, 33, 35 to 38, 41, 42, 44 to 46, 48, 49, 52, 56 to 65, 67, 69 to 71. The remaining thirty-eight mounds were, with the exception of Nos. 4, 27 and 74, of small size and produced comparatively few sherds.

In the fifty-two above-mentioned mounds there were :—

4,376 unornamented vessels.	12 vessels with perforated bases.
780 ornamented.	5 vessels with perforated sides.
25 ornamented bases.	6 vessels with ringed and pseudo-pedestalled foot.
16 vessels with cordons.	7 shallow grain basins.
7 vessels with zones.	1 pot cover.
13 pots with lugs.	

The number of unornamented vessels was obtained by counting the varieties of rim-mouldings from each mound, while the composition, colour of the paste, and the thickness of the ware were used as secondary guides. The total included fragments as well as complete pots. The number of ornamented vessels

PLATE LXIX.



POTTERY VESSEL FROM GLASTONBURY LAKE VILLAGE.
(About one-half Natural Size).

J. & D. Frater, Edinburgh, del.

was arrived at by counting the varieties of designs in each mound, but as the same type of ornament was sometimes repeated in several mounds, the above-mentioned total does not represent the number of distinct designs.

Vessels with cordons and zones should be added to the total of ornamented pots.

Vessels with lugs and perforated bases should be added to the total of the unornamented group, but vessels with ornamented bases, foot rings, and perforated sides, belong to the ornamented class and are included in the total under this heading.

The ten mounds that produced the greatest number of vessels were :—

Mound V	176 plain	25 ornamented.
Mound VI	259 „	11 „
Mound IX	192 „	37 „
Mound XVIII	285 „	48 „
Mound XXXV	173 „	16 „
Mound XXXVII	291 „	37 „
Mound XXXVIII	308 „	46 „
Mound XLII	290 „	33 „
Mound XLVIII } Mound XLIX }	401 „	78 „
	<hr/> 2,375	<hr/> 331

It will be noticed that in comparing the totals of plain and ornamented vessels from these mounds that the two groups were found respectively in the proportion of 7 to 1.

With reference to the production of the pottery, the clay and other materials composing the various pastes were probably products of the immediate neighbourhood. Excellent beds of clay lie at the foot of the Glastonbury hills and are extensively used for manufacturing bricks and tiles at the present day. Although the writer from boyhood has been on the look-out for pottery, and has examined superficially a large proportion of the fields in and around Glastonbury, he has failed to detect any Late-Celtic pottery except at the earthwork known as "Ponter's Ball." Romano-British types of pottery have, however, been obtained from several sites. The Roman pottery found at Northover, one mile west of Glastonbury, is hard-baked and of light grey-coloured paste, similar to that found at Wedmore associated with *terra sigillata*. The only specimens of Roman pottery found at the Village were portions of a small vessel of this light grey ware. The pieces were discovered immediately below the flood-soil and in such a position that it is a doubtful question whether they had any connection with the Village prior to the abandonment.

As the burial-place of the inhabitants has not been discovered, the form of

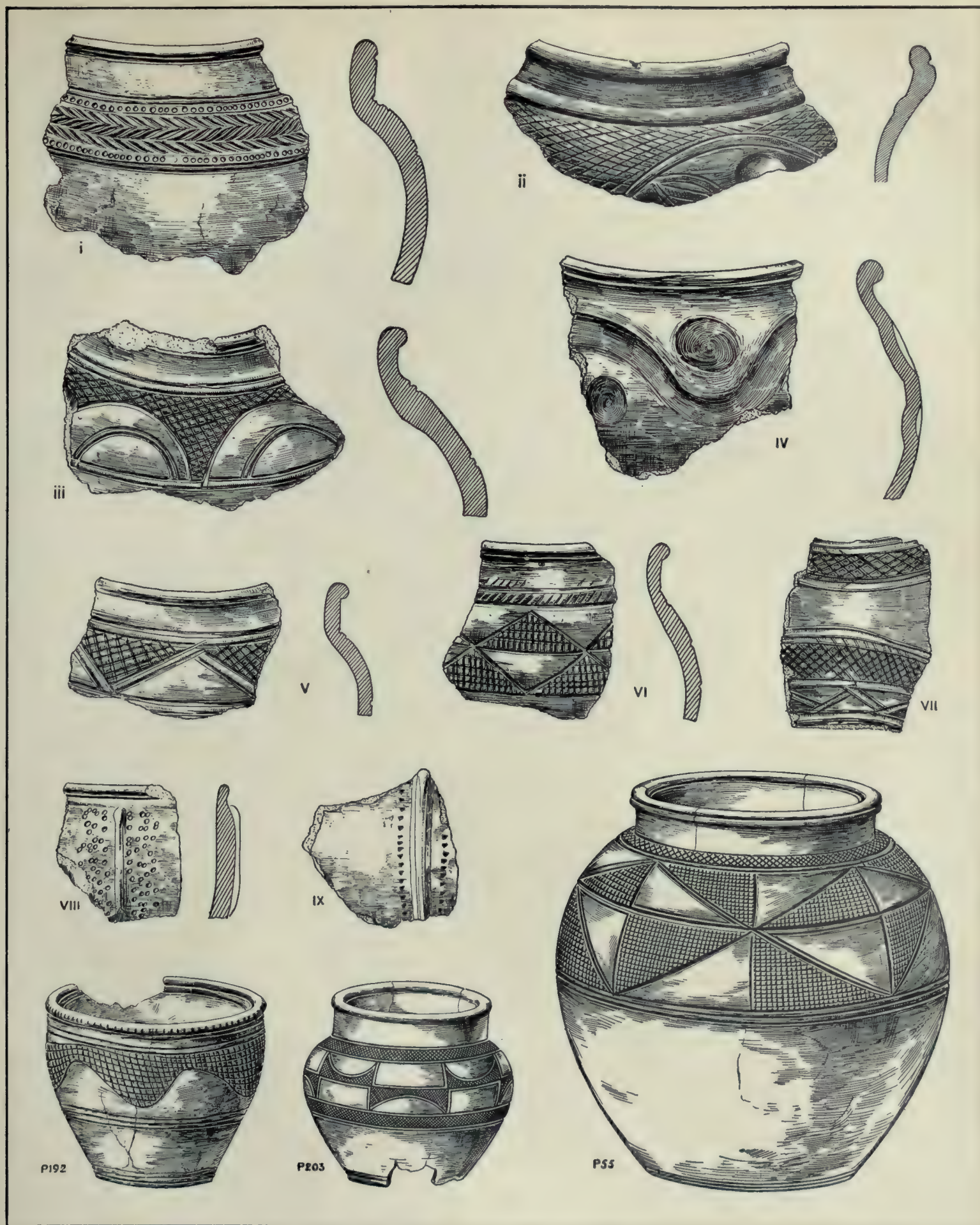
sepulture practised by this community is a matter of some speculation, and it would not in the present state of our knowledge regarding the subject be wise to hazard a definite opinion. In Britain during the Prehistoric Iron Age inhumation and cremation were both recognized forms of burial, and the rites were probably in use at the same time although in different parts of the country. Unburnt burials have been recorded from Yorkshire and Gloucestershire; but whereas the grave contents in the northern county were associated with a fibula of La Tène I period, those at Birdlip in the western county were found with fibulæ of period III, together with objects pointing to the first century A.D. It has been suggested¹ apropos of the two forms of burial, that in the non-Belgic areas of Britain, the native population in Late-Celtic times buried their dead unburnt. Although numerous graves and sepulchral vaults containing cinerary urns have been recorded in recent years from the s.e. counties of England, the Aylesford cemetery in Kent still remains the most notable discovery of its kind. This burial-site has been referred to the Belgæ and yielded pottery and other objects which were associated with La Tène fibulæ period III, and possibly a late form of period II. With regard to the Glastonbury Village we are unable to say how much of the pottery may have been intended for burial purposes. No pedestalled urns of the typical shape are to be found in the collection, and there are comparatively few examples in any way analogous to those found at Aylesford. The nearest approach to a cinerary urn is P 190, Plate LXXX, a fragment composed of dark brown paste and consisting of the lower part of a zoned vessel ornamented with shallow girth grooves and cordons. The profile of this vessel somewhat resembles Fig. 5, Plate VIII, in Sir Arthur Evans' paper on the Aylesford pottery.² The base of the Glastonbury urn is, however, hollow with a foot-ring and an omphaloid depression, whereas in the Aylesford cinerary urn it is flat and solid.

Bearing upon the above points of difference Mr. Reginald A. Smith, F.S.A., has drawn attention³ to a pedestalled urn with hollow base in the Morel collection of pottery from Somme Bionne, Marne, which was an accessory in an unburnt burial dating from the third and fourth century B.C. and associated with brooches of an early La Tène type. By inference, therefore, we should certainly expect to find burial by inhumation in Somerset, and this assumption is strengthened by the finding of the unburnt Late-Celtic interment in the neighbouring county. But the fact that fragments of charred bone representing every part of a cremated human body were found in the peat outside the palisading, scattered over

1. *E.I.A. Guide, B.M.*, 115.

2. *Archæologia*, LII.

3. *Ibid.*, LXIII, 24.



POTTERY FROM GLASTONBURY LAKE VILLAGE AND OTHER PLACES IN SOMERSET.

Fig. i., Wookey Hole; Fig. ii., Cheddar; Figs. iii. to ix., Ham Hill; P55, P192 and P203, Lake Village.

(All $\frac{1}{2}$ Natural Size, except P55 which is $\frac{1}{4}$).

a few square feet of ground to the north of Dwelling-Mound XLVIII, proves that cremation was not unknown at the Village.

Are we to assume from the above evidence of the hollow-based urn and the incinerated body that during the occupation of the Village the inhabitants witnessed the change from burial by inhumation to that of crematorial rites? If that were the case then some of the Glastonbury pottery is of earlier date than that discovered in the Aylesford cemetery. Bearing on this point it may be mentioned that recently at the Meare Lake-village, the base of an urn with foot-ring and an omphaloid depression and a fibula of La Tène I period were found in the same dwelling-mound.

We have no reason for supposing that any of the Glastonbury pottery was imported, but on the contrary there is evidence in favour of believing that the manufacture of vessels even of the finest paste took place on or near the site. Future researches at the Meare Lake-village may throw additional light upon the subject. However, the fact remains that neither kiln nor the probable site of such was discovered within the area of the Village. The circular ovens in the floors of Dwelling-Mounds IV and IX were shallow and of small dimensions (2ft. max. diam.), but, although they may have been used for baking small specimens of pottery, we have to admit there was nothing distinctive about them directly pointing to their use for such a purpose, neither were there any wasters nor other evidences of a factory in the immediate vicinity of the dwellings. It is doubtful if the better class wares could have been baked on open hearths such as were in general use throughout the Village, for we are unable to see how the smothering process which produces the dark grey and black pottery could have been satisfactorily carried out on them. Pieces of ware belonging to pots of dark grey or black-coloured pastes were frequently found on the hearths amongst the accumulated fire-ash, baked a light red tint from having been fired a second time, a fact which shows the original baking could not have taken place on an open hearth. After restoration these pots presented a very striking and patched appearance. The coarse thick pottery of a buff or light red colour, however, may have been baked in an open fire.

Since the discovery of the cemetery at Aylesford in 1886, and the appearance of Sir Arthur Evans' lucid and epoch-making description of the Late-Celtic pottery found there, it has been possible to differentiate this important and highly interesting branch of early ceramics from the Romano-British under which it was formerly grouped. It would appear from a survey of the localities in which Late-Celtic pottery has been found in this country that it is divisible into two classes, *i.e.*, Cinerary and Domestic. The chief features of the former are the pedestalled vases made in imitation of the cordoned *situlae* of bronze from the North Italian regions, and exemplified by the pottery from Aylesford, Welwyn,

and other burial-sites in the S.E. counties of England. Besides the pedestalled urns there are others with well turned bases, vases without pedestals, some of which are ornamented with incised patterns, girth grooves, and cordons, urns and bowls of globular shape, tazze, and other ceramic forms of lesser importance.

The better class domestic pottery is characterized not so much by form as by the patterns engraved upon it. In Britain the finest Late-Celtic pottery, namely that found in the graves, is wheel-made and of dark brownish-black paste, particularly free from grit or cretaceous particles; the external surface, often highly burnished, appears to be coated with a veneer which readily flakes off. Other examples have a black lustrous covering resembling a varnish or black glaze.

Taken as a whole the quality of the Glastonbury ware is less fine than that from Aylesford and the other sepulchral groups, and the coarseness of the paste sometimes approaches that of the Bronze Age. Comparatively few examples from the Lake-village exhibit either the characteristic rich brown colour or the black lustrous surface, but burnished pottery occurs frequently. The typical inverted cone-shaped urns of Aylesford are unknown at Glastonbury, but portions of several pseudo-pedestalled vases with foot rings were discovered having well moulded hollow bases with omphaloid depression, as for instance P 124, Plate LXXIII; P 190, Plate LXXX; and P 246, Plate LXXXIV. Cordoned or zoned vases are comparatively rare at the Lake-village, and no example unfortunately was found in any way approaching completeness, but the fragments show considerable elegance of form and artistic treatment.

In his description of the Aylesford cemetery Sir Arthur Evans has traced the general type of Late-Celtic pottery to its prototypes in a class of bronze vessels, characteristic of a well defined archæological province lying about the head of the Adriatic, and inhabited in ancient times by Illyrian tribes. He has also expressed the opinion that "the ornament on some of the Glastonbury vessels supplies another connecting-link with the same region, and shows how deep an impress was left on the Gaulish tribes by contact with the more civilized races of this vast Adriatic province." He points out that amongst the zoned and cordoned vases at Este and other ancient sites round the head of the Adriatic there are curious transitional forms, in which the record of the bronze originals is still preserved by the decoration of the zones of the vase with small bronze studs. Occasionally the studs are concentric circles, reproducing a form of embossed ornament frequent on some of the *situlæ*. In other instances they are arranged in geometric patterns, horizontal zones, meanders, and recurring spirals, copied from precisely similar designs on bronze prototypes. This fact will also be found to have an important bearing on the source of some Late-Celtic pottery. The late M. Déchelette writing on the pottery of the La Tène period

in France¹ pointed out that the two groups of vases, *i.e.*, those with the painted, and those with the incised curvilinear and geometrical decoration occupy well defined and distinct territories; the former are found over the greater part of France, the Rhine, and western Switzerland; the latter are restricted to Armorica and the s.e. provinces of France. M. Déchelette believed that these ceramic branches sprang from the same stock and developed on parallel lines. It is a surprising fact that we have nothing in Britain that corresponds to the Gaulish painted vases so frequently found in the Marne and other districts,² but the Armorican type with incised ornament now forms an important and characteristic group.

When visiting England M. Déchelette immediately recognized the great similarity between the pottery from Glastonbury and Hunsbury and that found in n.w. France. Not only does the decoration present the same characteristics, but there are the following resemblances of form and technique:—

1. The paste of black and grey colour is carefully burnished.
2. The forms of the rims are alike in both countries, and there is a striking similarity in the profiles.
3. The presence of exterior ornamentation on the base is a marked peculiarity, and is considered a detail of importance both by M. du Chatellier and M. Déchelette.

With regard to the origin of the incised pottery common to Great Britain and France, M. Déchelette concurs with Sir Arthur Evans that the designs originated from classic motifs, but is of the opinion that these were derived not so much from Italy by the north as by the sea-way, Iberia and the Atlantic shore. Although the Armorican specimens are less numerous than the British, they are, M. Déchelette thought, distinguished by a richer decoration, and a more original style which recalls that of the best painted Gaulish vases. The groups of vases from Saint Pol de Leon and Plouhinec belonged, he believed, to La Tène I period, and by comparison with these the British vessels resembled imperfect and degenerate imitations, in which the drawing of the geometrical lines had lost much of their fullness and originality. For this and other reasons M. Déchelette was led to believe the cradle of incised ceramics must be sought for in Gaul and not in Britain.

With reference to the date of the pottery from the British sites, the same authority considered the cordoned vases of Aylesford of more recent date than the incised curvilinear types from Glastonbury and Hunsbury.

Whereas the discoveries of Late-Celtic pottery in the s.e. of England have

1. *Revue Archéologique*, 1901.

2. So far as we are aware the only localities in England which have produced painted pottery belonging to the Prehistoric Iron Age are Highfield Pits, near Salisbury; Pit dwellings on Oldbury Hill, and Wilsford Downs, Wilts; and an inhabited site on Lansdown, near Bath.

been mainly sepulchral, those in the s.w. have been obtained almost exclusively from inhabited sites, such as pit and cave dwellings, camps, and the Lake-villages. When the systematic examination of more camps has been undertaken in the south of England and the contents of some graves of the Prehistoric Iron Age have been discovered in the s.w., some doubtful points in the chronological classification of Late-Celtic pottery may be cleared up. A considerable amount of information bearing on the date of the Glastonbury Lake-village pottery however may be obtained from discoveries on other sites. This is gained by comparing the varieties of form, fabric, and ornamentation, and by considering the associated objects and the depths at which they were found. The only coin found at Glastonbury was of the uninscribed type, of tin, found on an upper floor level and dating approximately from the middle of the first century A.D. (p. 393). The five coins found at Mount Caburn, Sussex, were of tin and uninscribed; they were struck some time previously to 43 A.D.¹ The two coins from Aylesford were struck somewhere about the middle of the first century B.C. At Wookey Hole Mr. H. E. Balch, F.S.A., found a denarius of Marcia, 124-103 B.C., near the surface of the pre-Roman deposit. As this type of coin appears to have been in circulation for a considerable period the evidence it afforded of date would not in itself have been very reliable had it not been supplemented by the discovery of a fibula intermediate in type between La Tène II and III.²

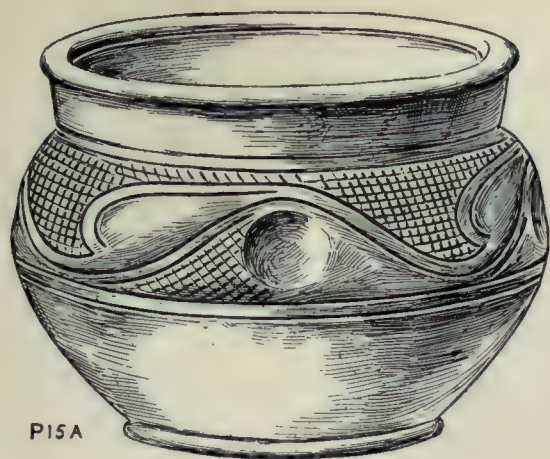
The importance of bases with foot-ring and omphaloid depression in Late-Celtic pottery was first realized by the writer during a conversation with Mr. Thomas May, F.S.A. Scot. The omphalos alone is found on pottery both before and during the earliest La Tène period in Continental sites. The foot-ring was a later addition, and during its development the use of the omphalos became obsolete. The evolution of the hollow foot therefore gives a rough chronological guide as to the date. In Britain it still survived in the La Tène II period and possibly at the Glastonbury Lake-village it existed at a later date. It is difficult to determine the date at which the pedestalled vase with solid base was introduced; apparently it was more recent than the omphalos and developed concurrently with the potter's wheel in Britain. No typical pedestalled vase was found at Glastonbury, Meare, Wookey, Hunsbury or Hengistbury Head.

At Red Hill III, Langenhoe, Essex, an incised bowl and a pedestalled vase with solid base, somewhat of the Aylesford type, were found side by side: the former vessel had an indented base and was ornamented with a pattern of interlocking semicircles, a design of common occurrence in the Glastonbury pottery.

At Meare Lake-village a La Tène I fibula and a hollow base with foot-ring and

1. *Archæologia*, XLVI, 471.

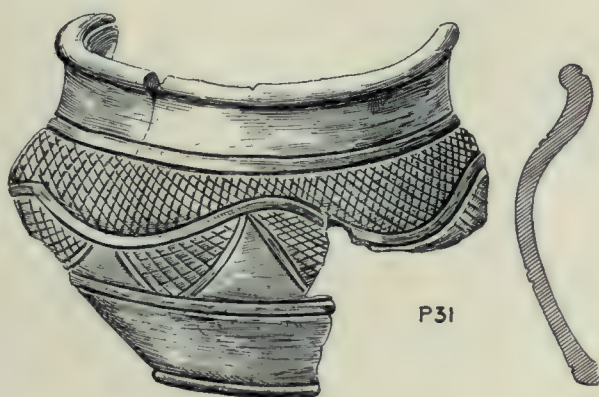
2. Figured in Vol. I, fig. 42, p. 184. Prof. F. Haverfield thinks, however, that Mr. Balch's coin may belong to the earliest Roman, not to the later Celtic occupation. ("Roman Britain in 1913," p. 47).



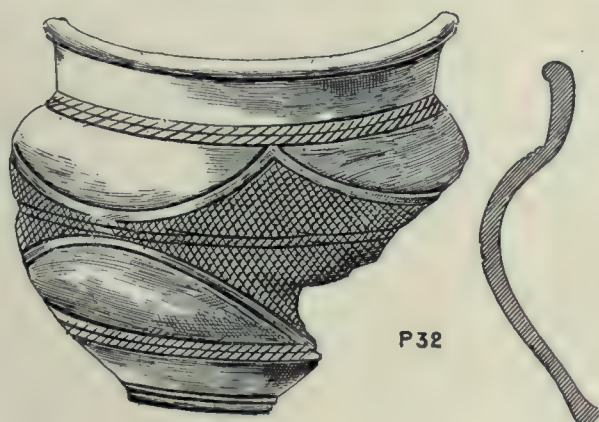
P15A



P26



P31



P32



P97



P98



P47

POTTERY FROM GLASTONBURY LAKE VILLAGE.
(About $\frac{1}{2}$ Natural Size).

omphalos were found in the same dwelling-mound, the former deep down on an early floor, the latter at a much higher level on an upper floor.

At Hunsbury no bases with omphalos were discovered.

At Wookey Hole two hollow bases with foot-ring and omphalos were found by Mr. Balch presumably well down in the Celtic deposit.¹

At the promontory camp of Hengistbury Head, Hants, a large and important collection of pottery was collected during the examination of the site in 1911-12. The pottery shows a prolonged occupation extending from the Bronze Age to the middle of the fourth century A.D. From a comparison of the Late-Celtic pottery found at Hengistbury and Glastonbury, Mr. J. P. Bushe-Fox, F.S.A., is inclined to place some of the Lake-village pottery at an earlier date than has been hitherto ascribed to it. Mr. Bushe-Fox has arranged the Hengistbury ware under various types, and the chronological classification he has produced will be of the greatest value and help.² The account of the pottery resembling that of Glastonbury may be summarized as follows:—

Under Class B, Plate XVIII, the cordoned vessels, nos. 21, 22, and 28, appear to be degenerate copies of No. 3, Plate XVII. No. 21 was found with a brooch of La Tène II period. The outline of these examples have a close resemblance to two from the Glastonbury Lake-village.

Under Class C, Plate XIX, Mr. Bushe-Fox thinks nos. 12 and 13 appear to be copies of the hollow base with omphalos, and probably belong to the second century B.C. The Lake-village produced a base of somewhat similar proportions.

Under Class D, Plate XX, the following specimens occur:—Nos. 1 and 2 with an incised scroll pattern, No. 3 a bowl with incised chevrons, No. 4 a bowl with an incised pattern of interlocking semicircles having the enclosed spaces filled with cross-hatching. The likeness of these patterns and shapes to many found at Glastonbury is unmistakable. The same authority says that fragments of only about one dozen bowls of this Glastonbury type were met with at Hengistbury, and it is impossible to date any of them with certainty. It should be noted, however, that No. 1 occurred with some fragments of the best cordoned bowls (Class B, La Tène I period, 400-250 B.C.). Two other fragments occurred in deposits that were probably not later than the second century B.C.

According to M. Déchelette the two divisions of proto-historic time, namely the periods of Hallstatt and La Tène, can only be applied to the regions occupied above all by the Celts, Germans, Ligurians, Illyrians and Iberians. This classification cannot be wholly adapted to the northern regions, for the characteristic Early Iron Age types of the period of Hallstatt are hardly represented. For the

1. Balch's "Wookey Hole," Plate xvi, figs. 2, 7.

2. "Excavations at Hengistbury Head, Hants." (*Report No. III, Research Committee, Soc. Antiq. Lond.*). The above plates refer to this work.

same reason the classification is not applicable to the British Isles and Armorica, for the Iron Age only appears to begin properly speaking with the epoch of La Tène, at the beginning of the fifth century B.C. The first phase of the epoch of Hallstatt is nowhere represented in all Western Gaul. The second phase, that of daggers "à antennes" has left numerous traces in S.W. Gaul and only very scattered ones in Armorica. From the paucity of these discoveries M. Déchelette considered it is only in the La Tène epoch that this last region appears as definitely won over to the industry of iron. What has been said of Armorica applies equally to the British Isles and Scandinavia, where the culture of the Bronze Age, modified slightly by certain borrowings from Hallstatt, survived up to the epoch of La Tène.

Recent discoveries of pottery in England have, however, thrown additional light on this point, and evidence is being gradually collected which shows that Britain was influenced to a greater extent by an Early Iron Age culture than was formerly supposed. For instance, a two-handled cup found in the Thames, near Barn Elms, Surrey,¹ apparently belongs to the Hallstatt period, and a burial urn discovered at Broadstairs, Kent,² has also strong resemblances to the pottery of the same period. From the neighbourhood of Peterborough, Mr. Wyman Abbot has collected a type of pottery which it is difficult to associate either with the Bronze Age or with the La Tène periods,—namely a carinated bowl ornamented with incised oblique lines round the rim, another with a row of bosses resembling bronze studs, and a third ornamented with a chevron design shaded with oblong depressions roughly made with a pointed tool.

From Ham Hill, Somerset (Taunton Mus.) fragments of a number of carinated and other vessels have been found bearing a resemblance to Hallstatt pottery. One fragment of a carinated bowl is ornamented with three parallel horizontal grooves above the angle; another has a design of rectangular punched holes arranged in rows; and a third specimen is ornamented with incised chevrons. Other vessels are decorated with raised bosses, vertical keel-shaped ridges and finger-marked depressions.

Mr. Bushe-Fox has grouped a series of vessels from Hengistbury under Class A, and says "parallels to every type in this series may be found in the cemeteries of the first Iron Age (Hallstatt period) in the south-west of France and the Pyrenees."³ The ornament on the Hengistbury fragment (Fig. 12, Plate X) has a very strong resemblance to P 288, Plate LXXXVII, from the Lake-village, and with the exception of the carinated bowl (Fig. 9) the fragments depicted in Mr. Bushe-Fox's Plate X have parallels amongst the Glastonbury pottery. The

1. *Proc. Soc. Antiq. Lond.*, 2 ser., XXV, 84-8.

2. *Ibid.*, 89.

3. "Excavations at Hengistbury Head," p. 33.

counties of Wilts and Bucks have also produced types of pottery that have been assigned to the Early Iron Age.

From their primitive domain—Central Europe and N.E. France—M. Déchelette says the Celts spread themselves in the first and second ages of iron over a very wide territory. At the beginning of the third century B.C., the epoch of their greatest extension, their country comprised the British Isles, the Iberian Peninsula, Gaul, N. Italy, and the regions of the Rhine and Danube, as far east as the Black Sea. Of these numerous conquests some, that of the British Isles and the Iberian Peninsula, took place at an uncertain date, perhaps prior to the end of the epoch of Hallstatt. Others, for the most part historical, are placed at the fourth and third centuries B.C. "Archæology is now in a measure able to show that the Celtic conquest, in the fourth and third centuries, concurrently with the development of commercial transactions, had the result of spreading in all the European countries under the dominion of this people a remarkably homogeneous culture. It is the so-called *La Tène* civilization, born in the fifth century in the Rhenish countries, that is to say in the centre of the land that is considered the primitive Celtic Country." The conquest of Britain by the Belgic Celts is an historical fact mentioned by Cæsar. The migration probably began about 200 B.C., and with them appears anew the rite of cremation. These inroads seem to have been preceded from 400 to 200 B.C. by the arrival of other bands of Celts armed with swords of *La Tène* type. These tribes established themselves in various parts of Britain; they can be traced as far as Yorkshire in the north, and Gloucestershire in the west, and they doubtless occupied many localities in the intervening counties and in the south. It is with the people of this pre-Belgic period that we would associate the burials by inhumation and the introduction of the pottery with omphaloid depression. It may no doubt be generally assumed that migrations would take place at the most accessible point, *i.e.*, the narrowest part of the Channel, just as at the present day it is the route of greatest activity between Great Britain and the Continent. There must, however, have been many landing-places along the southern shore, and at more distant parts of the coast where colonization took place; for if this were not the case it would be difficult to account for the early arrival of the *La Tène* civilization in Ireland. From the earliest times considerable intercourse must have taken place between the inhabitants of N.W. Gaul and the people on the opposite coasts of Britain.

With reference to some pottery from a Bronze Age burial in Wilts, the Hon. John Abercromby says,¹ "the interesting find from Bush Barrow, Normanton, seems to point to direct or indirect communication at an early period with *Armorica*"; and again with regard to a vessel found at Winterbourne Stoke,

1. "Bronze Age Pottery," II, 137, 138.

Barrow 16, Wilts, "this vessel is another proof that some intercourse was maintained between the south of Britain and Armorica in the early Bronze Age." Apropos of the origin of Types III and IV of Bronze Age pottery, the same writer remarks,—“as some of the urns of these types and a certain feature in others seem to betray an exotic origin, it becomes necessary to try to ascertain whence the new element had come. The large broad handles, 3ins. wide, seen chiefly in Cornish examples, though extending to Dorset and S. Wilts, are common in Armorica on urns of Bronze Age II. It is therefore not too much to assume that the broad handle characteristic of several Cornish urns came originally from Gaul and perhaps from Armorica.

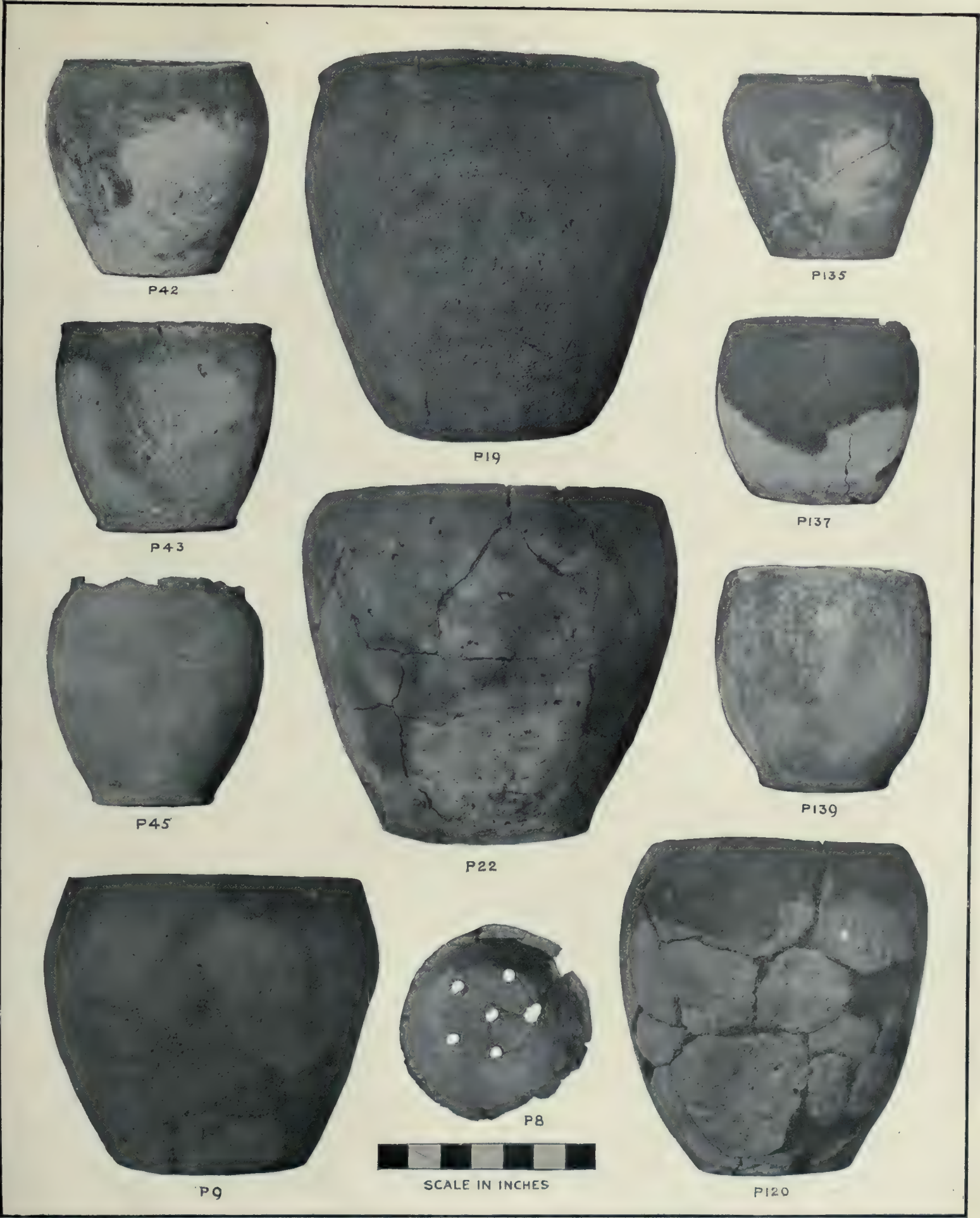
In the later Celtic times greater influences were evidently at work, and more striking examples of Gaulish art are to be met with on the N. side of the Channel. Besides the coins of Armoric type that have been found in Devon and Hants, the Marlborough bucket is a notable instance. Sir Arthur Evans thinks "it is highly probable that this interesting product of Gaulish art found its way to Britain in one of the trading galleons of the Armoric Veneti." Some of the pottery from Hengistbury Head is another connecting-link, and apparently supports this supposition. Whether the inhabitants of the Somersetshire marshes and the immediate neighbourhood were of Belgic or Armoric origin future researches may help to decide, but if the question is looked at from the standpoint of pottery, it must be acknowledged that the Glastonbury ware has greater affinities in form, ornamentation, and technique to that of Armorica, than to the pottery of the east or Belgic Gaul, and it is within the bounds of probability that the lake-villages of Somerset were occupied by Armoric colonists.

At the time of writing Mr. Thomas May is going through the Silchester pottery, and although his conclusions with reference to Late-Celtic types can hardly at the present moment be regarded as final, yet he is able to state that none of the shapes in the Glastonbury collection are represented, and there is no example of the incised running scroll. The Belgic tribe at Silchester apparently had no dealings with the Somersetshire lake-dwellers.

II. GEOGRAPHICAL DISTRIBUTION OF LATE-CELTIC POTTERY IN ENGLAND.

At the outset it was the writer's intention to give an account of the localities in each county where Late-Celtic pottery has been discovered, and to record systematically the various finds and types of vessels, but owing to the length of the subject, which many times exceeds the scope of this chapter, it has been necessary to reserve the notes for a more fitting occasion.

Of the recorded localities where Late-Celtic pottery has been found a large



POTTERY FROM GLASTONBURY LAKE VILLAGE.

proportion of them lies in the s.e. district of England. The four counties, Essex, Kent, Surrey and Sussex, placed numerically in order of importance, are represented by 52 sites, the majority of them being places of sepulture. Essex heads the list with 17 sites, 14 of which are burial-places. In Somerset and Wiltshire Late-Celtic pottery has been discovered in 25 distinct localities; 23 of these are inhabited sites; the finds from the other two are of a doubtful nature and unimportant. With the exception of the recent discoveries of pottery at Hengistbury Head in Hampshire, this and the other s.w. counties—Dorset, Devon and Cornwall—are poorly represented.

For comparative reasons it is an unfortunate coincidence that no Late-Celtic burial-place has come to light in the west of England (if we except that of Birdlip in Gloucestershire), and so little ware from inhabited sites has been forthcoming from the east. All the sites mentioned in the Somerset list have produced pottery bearing an unmistakable likeness to the Glastonbury ware. This is not only evident in the similarity of the style of ornament and shape of the vessels, but also in the paste and technique. It is however amongst the pottery from Ham Hill and Wookey Hole that the most striking resemblances are found. At the Mendip site an interesting parallel occurs in a pseudo-pedestalled vase with omphaloid depression in the base.

Apart from Somerset, pottery ornamented with incised patterns, in many ways resembling that found at Glastonbury, has been discovered in two distinct localities in Cornwall; at several sites in Wilts; in Kent's Cavern, Torquay, in Devon; Hengistbury Camp in Hants; Mount Caburn, Cissbury, and Brighton in Sussex; Red Hill III in Essex; Hunsbury Camp near Northampton; Peterborough in Cambridgeshire; and Yarnton in Oxfordshire.

The following is a list of localities in each county where Late-Celtic pottery has been found, so far as the researches of the writer have been carried in England. As many counties are unrepresented the list is only a tentative one, and the writer would be glad to be advised of any omissions or additions.¹

1. SOMERSET. Meare Lake-village; Wookey Hole; Cheddar; Cadbury and Sigwell Camps (South Somerset); Worlebury Camp; Ham Hill; Cannington Park Camp; Lansdown, Bath; Charterhouse-on-Mendip; and Dolbury Camp.²
2. DEVON. Kent's Cavern, Torquay; Stamford Hill, Plymouth; Mount Batton, Plymouth.

1. The writer wishes to take this opportunity of expressing his great indebtedness to the under-mentioned for the assistance they have given on various occasions:—Mrs. Cunnington, Dr. Eric Gardner, Capt. John E. Acland, Messrs. A. G. Thacker, H. E. Balch, Percy Manning, Reginald A. Smith, Thomas J. George, Arthur G. Wright, Thos. W. Colyer, Edwin Hollis, W. H. Jacob, Thos. May, G. H. Dutton, Thos. Sheppard, Oxley Grabham, J. H. Allchin, T. V. Hodgson, Herbert S. Toms, and Guy Maynard; and also to Mr. H. St. George Gray for many notes and valuable information.

2. "The Heart of Mendip," by F. A. Knight (1915), p. 201; and *Proc. Som. Arch. Soc.*, LXI, xlv.

3. CORNWALL. Harlyn Bay ; St. Merryn ; Tregaer Rounds, St. Kew.
4. DORSETSHIRE. Jordan Hill, Weymouth ; R.B.V. Woodcuts.
5. WILTSHIRE. Highfield Pits, Salisbury ; Oare ; Oldbury Hill ; Casterley Camp ;
Wilsford Down, Marden ; Beckhampton ; Amesbury ; All
Cannings ; Cold Kitchen Hill ; Knap Hill ; Latton ; R.B.V.
Rotherley ; Grafton ; Martinsell Hill ; Winkelbury Camp ;
Winterbourne Monkton Down.
6. HAMPSHIRE. Fordingbridge ; Hengistbury Camp ; Silchester ; Winchester (?).
7. SUSSEX. Brighton ; Mount Caburn ; Cissbury ; Chichester ; Seaford ;
Pulborough ; Kingston-by-Sea ; Lancing.
8. KENT. Aylesford ; Kit's Coty House ; Allington ; Northfleet ; Broad-
stairs ; Loose, Maidstone ; Bobbing ; Dover ; St. Peter's,
Thanet ; Ramsgate ; Murston ; Walmer ; Rochester ; Buck-
land.
9. SURREY. Haslemere ; Leigh Hill, Cobham ; Fetcham, Leatherhead ;
Carshalton ; Wisley, Weybridge ; Warlingham ; York Town ;
Frimley ; Puttenham ; Redhill ; Crowhurst ; Oxted ; Limps-
field. (One vessel, locality unknown).
10. ESSEX. Red Hill III, Langenhoe ; Heybridge ; Kelvedon ; Shoebury ;
Braintree ; Colchester ; Southend-on-Sea ; Barnston ;
Billericay ; Chigwell ; Lexden, Colchester ; Little Hallin-
bury ; Red Hill X, Goldhanger ; Southminster ; Chelms-
ford ; Hamborough Hill, Rayleigh ; Great Chesterford ;
Wendon ; Cressing.
11. BERKSHIRE Abingdon ; Long Wittenham ; Wytham ; Foxcombe Hill,
Wootton ; Tubney ; Reading (?).
12. BUCKINGHAMSHIRE. Ashton Clinton ; Ellesborough ; Hedsor ; Cookham Lock ;
Swanbourne ; Hydon Hill ; Fleet Marstin ; Terrick.
13. OXFORDSHIRE. Yarnton ; Dorchester ; Bampton ; Headington ; Blackthorn
Hill.
14. GLOUCESTERSHIRE. Kingsholm.
15. WORCESTERSHIRE. Malvern.
16. STAFFORDSHIRE. Alstonfield.
17. DERBYSHIRE. Harborough Cave ; Rains Cave, Brassington ; Thirst House Cave,
Buxton.
18. YORKSHIRE Driffeld ; Bridlington ; Heslerton (?) ; Cowlam (?).
19. LANCASHIRE. Dog Holes, Warton Crag.
20. NORFOLK. Coltishall ; Hedenham ; Marsham (?) ; Wereham (?). (Six
vessels, locality unknown).
21. CAMBRIDGESHIRE. (Locality unknown).
22. NORTHAMPTONSHIRE. Hunsbury ; Castle Site, Northampton ; Duston ; Weekley and
Cransley, Kettering ; Peterborough ; Desborough.
23. SUFFOLK. Freckenham ; Westhall ; Elveden.
24. HERTFORDSHIRE. Hitchin ; Welwyn ; Letchworth.
25. BEDFORDSHIRE. Sandy ; Oldwarden ; Shefford.

III. CONSTITUENTS OF PASTE.

With few exceptions the unornamented vessels were of a coarse paste mixed with various quantities of either one or more of the following ingredients:—Limestone, grit, quartz, chert, fragments of fossil shell and raddle. Very few specimens of ornamented pottery were free from some admixture of grit or sand, and only about a score of pots, or fragments, could be said to approach in fineness the texture of the Aylesford pedestalled ware and cinerary urns from Essex and other Late-Celtic sepulchral sites. Besides the above-mentioned geological constituents, the paste of some of the Glastonbury pottery had finely divided fragments of rush or reed mixed with the clay; the charred pieces of vegetable matter or the impressions of them were frequently noticed in the fractured surfaces. The admixture of chopped up straw or grass in the paste has been found and commented upon by Mrs. Cunnington in some Bronze Age pottery from Arn Hill, Warminster.¹ A fragment of pottery, consisting of fine basket-work of very thin rushes or grass over which finely washed clay had been plastered on both sides, was found by General Pitt-Rivers, at Handley Hill, Dorset.²

Some typical pieces of Glastonbury pottery have been examined and kindly reported upon by Mr. J. Allen Howe, F.G.S., and the following geological ingredients have been recognized by him in the various pastes:—

Sample.

- A. Calcareous mud with abundant fossil-shell fragments.
- B. Oolitic marl, possibly Carboniferous.
- C. Rather fine paste with fragments of chert and crinoid ossicles.
- D. Paste very porous, apparently made from a peaty silt.
- E. Paste dark, calcareous, full of shale fragments, crinoid ossicles, etc.
- F. Very coarse paste, full of small pebbles of quartz, limestone, chert, grit, and raddle.
- G. Paste consisting of fine silt full of fine quartz sand.
- H. Fine silt, sandy in parts.
- J. Paste very like F.
- K. Some of this paste has much broken calcite in fragments.
- L. Paste pale (grey), contains some quartz, but is fairly fine and free from lumps.
- M. (1) Paste full of oolite grains, (2) full of fine quartz grains.
- N. Paste contains minute shell fragments and chert.

Mr. Howe points out that none of the specimens had been completely baked or fired, and thinks that many of the vessels are baked harder on the inner surface than the outer. The glazed surface on some of the fragments looks more like a glaze of some kind than an applied slip.

1. *Wilts Arch. Mag.*, XXXVII, 540.

2. *P.R. Excavations*, IV, Plate 299, fig. 1.

The shell fragments, crinoid ossicles, chert, calcite, grit, and raddle all seem to point to local material, probably the downwash from the Carboniferous rocks near by.

With reference to the above-mentioned ingredients it may be interesting to give the type of vessel which each sample represents :—

Sample.

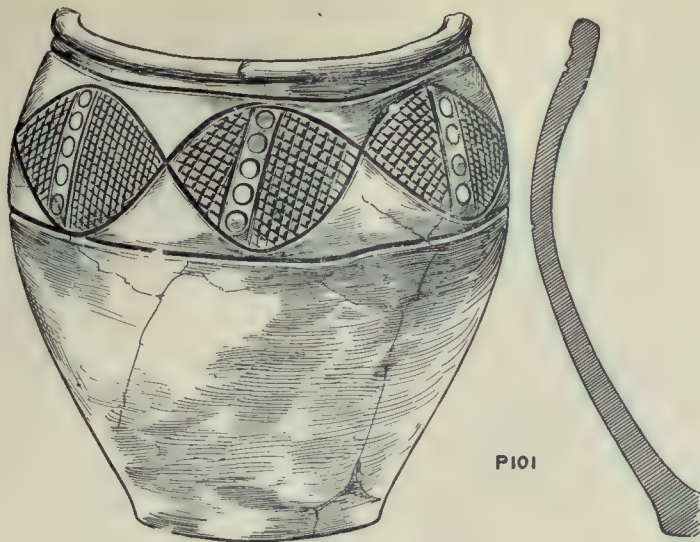
- A. Cooking-vessels of small and medium sizes.
- B. Vessels sometimes ornamented.
- C. Cooking-pots, seldom ornamented.
- D. Generally used for cooking-pots, seldom ornamented, paste of light red colour, with soapy feel.
- E. Pots frequently ornamented.
- F. Large cooking or storage vessels, never ornamented.
- G. Pots and bowls occasionally highly ornamented, and with burnished surface.
- H. Frequently ornamented ; surface has smooth soapy feel.
- J. Cooking-vessels of smaller sizes, unornamented.
- K. Surface with black polish or glaze, sometimes ornamented.
- L. Cooking-vessels of smaller sizes, covered with grey or whitish coating, pottery thick, surface smooth but uneven.
- M. Generally ornamented, and surface highly burnished.
- N. Frequently ornamented, and surface burnished.

IV. TECHNIQUE.

Taken as a whole the collection of Lake-village pottery may be considered hand-made. Out of the 780 ornamented vessels and fragments, which includes all the better class ware, only about a score show distinct evidence of throwing. Amongst the zoned and cordoned vessels a large proportion show no signs of the wheel and are without the horizontal grooves and striæ usually produced during the mechanism of turning. The regularity of the grooves bordering the zones and cordons in these specimens however point to the use of some simple apparatus such as a turning-table.

The ornamented vessels as well as some of the coarser pottery were constructed in a most interesting manner, and almost identical with the method in vogue amongst the Hopi and other North American tribes. In an article on "Aboriginal American Industries," Mr. J. L. Cowan¹ informs us that the potter's wheel is not in use, but that the clay is worked into strips, and carefully built up in successive coils or bands, the vessel being fashioned into any shape desired. This process is followed by the application of more clay to the inner and outer surfaces, which by pressure and patient rubbing obliterates all traces of the joints

1. *Reliquary and Illus. Arch.*, Vol. XV (1909), p. 36.



P101



P106



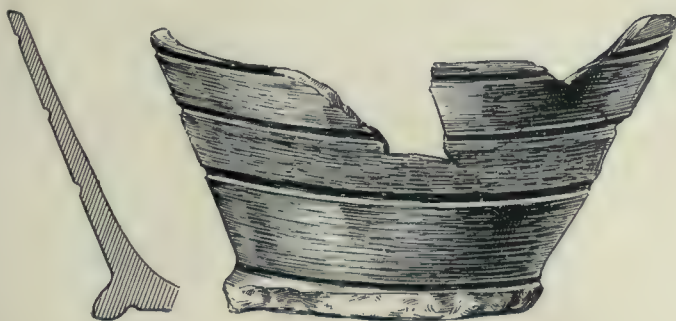
P128



P149



P142



P124



P105

POTTERY FROM GLASTONBURY LAKE VILLAGE.

($\frac{1}{2}$ Natural Size, except P105, two-fifths).

between successive coils, and produces a perfectly smooth and even surface. In the Glastonbury pottery the bases were first prepared by cutting out a thin flattened cake of clay; upon this disc the walls of the vessel were built up by successive horizontal layers or bands in exactly the same way as that practised by the North American Indian. This has been frequently proved by the finding of separated bases or the sides of broken vessels, when the fracture has taken place horizontally at the weakest point, namely at the junction of the coils. The fractured surfaces were either concave or convex, and it has often been noticed that the margins were fringed with a thin overhanging edge produced by the addition of clay to the joints during the rubbing and pressing process described by Mr. Cowan. The upper surfaces of separated bases were invariably surrounded near the margin by a shallow concavity into which the first coil was pressed.

With reference to the under-surfaces of vessels, none of the bases exhibited the concentric rings or striæ observed in vessels cut from a wheel, neither did the lowest part of the internal surface show the spiral ridge which is constantly seen in roughly turned wheel-made pottery. The internal surface of the ornamented vessels was frequently noticed to be indented with finger-marks produced during the moulding and shaping. The external surface was generally smooth, sometimes highly polished or burnished, and often marked with vertical ridges made by smoothing the clay with a tool during the half-dried stage before baking.

The rims as a rule were well moulded, frequently heavy and overhanging, and it was sometimes difficult to realize that they were made without the help of the wheel, but with few exceptions no striæ were noticeable. Mr. Balch has recently found at Wookey Hole some bone tools which were presumably used for moulding rims. The tooling on the rims was usually horizontal on both surfaces.

The pseudo-pedestalled or ringed bases appear to have been made separately from the body of the vessel and afterwards attached to it, presumably in the same way that handles and spouts of modern ware are joined at the present day. Mr. Arthur Wright has also drawn attention to the same thing in some of the pedestalled vessels found in Essex. In these examples the base is also hollow, the foot being made independently of the body of the vase and the two luted together before firing.

With reference to the implements employed in producing ornamented pottery, although a turning-table was undoubtedly in use, there was no direct evidence of such an appliance among the wooden objects found in the Village. Some of the tools used for ornamenting and burnishing the pottery are to be seen amongst the objects of bone and antler (Chapters XIII and XIV), whilst the use of other implements has been deduced from the marks on the pottery. In every instance the ornament was applied to the vessel before drying. The following are some of the tools and methods that were adopted :—

1. The sharp point.
 2. The blunt point ; several sizes were used.
 3. Square-edged tool ; this was less frequently used than 1 and 2, but is very distinct on some vessels. (For instances, *see* P 292, P 296, Plate LXXXVII, and P 305, Plate LXXXVIII). The grooves on either side of the cordons are sometimes of rectangular section, and may have been made with an implement having a concave notch between two square-cut projections.
 4. Stamps of antler for impressing circles ; these were small cup-shaped depressions of different diameters bounded by thin sharp edges. (For examples, *see* H 19, H 74, H 75, and H 348, Plates LXV and LXVII, and pp. 456, 465). Some of the impressed circles may have been made with pieces of cut reed. (For typical examples of ornament *see* P 101, P 105, P 106, P 128, Plate LXXIII ; P 129, P 145, Plate LXXIV ; P 248, P 253, Plate LXXXIV ; P 262, Plate LXXXV ; P 285, Plate LXXXVII ; and P 309, Plate LXXXVIII).
 5. The roulette and pieces of bone or antler with a convex notched margin were in common use. No implement was however found, but at least three different sizes were employed. (For examples of the ornament, *see* P 208, P 215, Plate LXXXI ; P 249, Plate LXXIV ; and P 270, Plate LXXXV). Mr. Balch has also observed that three sizes were used by the inhabitants of Wookey Hole Cavern.
 6. A modelling-tool, H 3 (Plate LXIV, and p. 413), having an oblique sharp edge, may have been used for making incised lines or burnishing. It is of almost identical shape to a boxwood modelling-tool used at the present day. The lower end is unfortunately broken and may have ended in a point. (For other tools *see* B 148, B 205, and B 241, Plate LXIII, and pp. 412-3).
 7. Some of the rougher patterns were produced by the impressions of the finger-tip and nail. (For examples, *see* P 266, P 267, P 269, Plate LXXXV).
 8. Numbers of pieces of bone and antler were found with highly polished surfaces ; some of these were probably used for burnishing the surface of the pottery (Plate LXIII, and pp. 414-5). The writer some few years ago witnessed the process in a small Somerset pottery, where a piece of ox-bone was being used for the purpose of smoothing and polishing the outer surface of vases.
 9. Although there is no direct evidence of the use of compasses, yet some of the curves were so accurately drawn and repeated as to leave very little doubt in the matter. We also know that some form of centre-bit was used for cutting circles on bone and antler.
 10. A turning-table of some kind was in use, and the potter's wheel was known.
- A few fragments of coated pottery were examined by Mr. Thomas May, who says the specimens show that the inhabitants were acquainted with methods of glazing and colouring earthenware. The following are examples:—

Sample 1. This was dipped in a watery solution of hæmatite, or rubbed over with hæmatite in the dry state, and baked in a smoky fire which gives it the purplish-black coating.

Sample 2. This was evidently coated with a true glaze, *i.e.*, a coating of silica vitrified by the addition of some kind of flux.

Sample 3. This vessel was washed with a watery solution of red iron oxide; hence the purplish-red stain inside and out. This anticipates a common mode of decoration in the Constantine period by painting light clay with bands of red ornament.

Portions of two vessels of coarse thick pottery with buff-coloured surface were found at the Lake-village with vertical and oblique bands of the above-mentioned red iron oxide paint.

V. TYPES OF POTTERY SHAPES.

We are indebted to Mr. Thomas May, F.S.A.Scot., for the pottery drawings giving the elevation and section of each shape. Although the two Plates LXXV



FIG. 159.—SERIES OF RIM MOULDINGS FROM DWELLING-MOUNDS XXXVII AND XXXVIII, GLASTONBURY LAKE VILLAGE.

and LXXVI include some twenty types, it will be understood that amongst a large collection of hand-made pottery the variety of form is endless. For instance in the accompanying Fig. 159 are depicted in section a series of fifteen rims from Mounds XXXVII and XXXVIII; between these forms there is a vast number of gradations. In Plates LXXV and LXXVI some of the more important types have been selected; others of coarse ware may be seen in the photographic Plates LXXII and LXXVII.

Plate LXXV, Numbers I, III, and IV are the shapes most frequently met with

amongst the ornamented pottery. Numbers II and X represent shallow grain dishes of coarse ware. Numbers VI, VII, VIII, and IX are highly ornamented vessels and the shapes are rarely found. Number V is a food-vessel of buff-coloured ware. Number XIII a vessel of ornamented black ware, with highly burnished surface; the thick comma-shaped rim is of rare occurrence.

Plate LXXVI, Numbers XIV, XVI, and XXII are varieties of a common shape amongst the ornamented pottery. Number XV is also a common form with nearly straight sides and often highly ornamented: several vessels of this shape were found at Mount Caburn, Sussex, and at Oldbury Camp, Wilts. Number XVII is a type of food-vessel of frequent occurrence, and is very similar in outline to Number XII, Plate LXXV, but of coarser material. Number XVIII represents an uncommon type of ornamented bowl. Numbers XIX and XXIV are food-vessels frequently met with, and generally made of a coarse paste. Number XX is a wheel-made vessel and of rare occurrence; the paste is brown black in colour and the external surface highly finished. Number XXI is a type of small vessel generally made of a coarse fragile paste, and sometimes rudely ornamented. Number XXIII is a good type of food-vessel, with a burnished surface and sometimes ornamented.

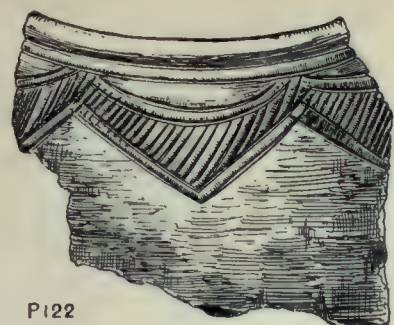
It will be noticed that in all the shapes the rims are wide and open. This feature, together with the absence of tapering bodies, is probably explained by the fact that the pottery with few exceptions was hand-made. Another point of interest is the large number of vessels having one or more grooves on the inner surface of the rim. Pots with beaded rims are uncommon; perhaps not more than a dozen examples are to be found in the whole collection, and all are hand-made.

On comparing the profiles with those of vessels from other sites, we find there are none that exactly correspond with the Aylesford forms; neither is there anything in common apparently between the Lake-village pottery and the Welwyn group. Amongst the Hunsbury pottery there are parallels both in form and ornament. Mr. T. J. George when describing the Hunsbury ware says, "the material of these bowls is not unlike that of the cinerary pots from Aylesford, though the shapes found at Hunsbury are wholly absent at Aylesford; only at Glastonbury do we find anything approaching in quantity and nature of decoration the collection of pottery from Hunsbury."¹

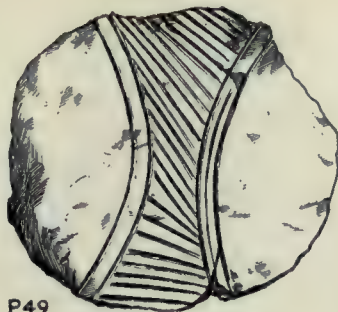
At Wookey Hole Mr. Balch has not only found pottery decorated with designs similar to Glastonbury, but amongst the vessels there is a marked resemblance in some of the forms. For instance the profile of Mr. Balch's Number 8, from Wookey,² is analogous to Number VIII, Plate LXXV, from Glastonbury.

1. *Vict. Co. Hist., Northants*, Vol. I.

2. *Archæologia*, LXII, 586, fig. II, no. 8. See also "Wookey Hole" (1914), Plate xiii, fig. 8.



P122



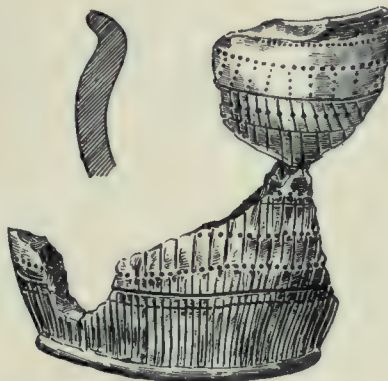
P49



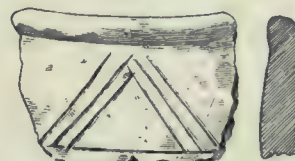
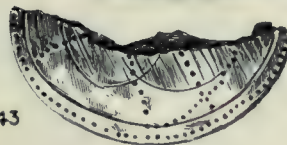
P129



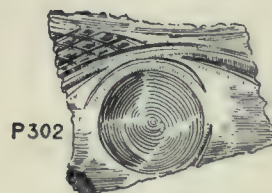
P144



P143



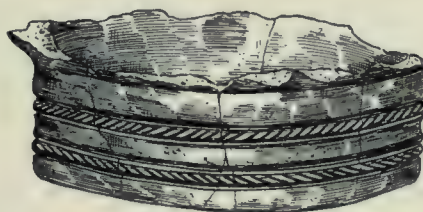
P74



P302



P145



P127



P249



P313



P146



P10



POTTERY FROM GLASTONBURY LAKE VILLAGE.

(About $\frac{1}{2}$ Natural Size).

Besides the vessel ornamented with interlocking semicircles there are undoubted resemblances between the rim mouldings from Glastonbury and Red Hill III and X in Essex. There is a small number of Lake-village vessels like Number XI, Plate LXXV, having a solid foot with a vertical external surface resembling a pottery base from Red Hill III, Langenhoe.¹

Pseudo-beaded bases occur at Glastonbury, but the bead with few exceptions is made by two marginal grooves, one placed immediately above, the other near the edge of the base. There is also an occasional attempt at a heavy roll rim, but the specimens are all distinctly hand-made. A type of base of rare and unusual form is seen in the drawings, P 127, Plate LXXIV, and P 247, Plate LXXXIV. Both examples happen to be ornamented and made of the same light grey paste. These bases are flat and have vertical external surfaces about an inch in height before the curve of the body springs outwards. The inside of both specimens is hollow.

VI. ORNAMENTED POTTERY.

In any attempt to trace the origin and development of La Tène ornament in Britain a controversial question arises which is surrounded with many difficulties. In the light of recent researches at the Somerset Lake-villages and other sites in the west of England, it is a subject that cannot be wholly avoided in a description of the pottery. The writer does not intend, however, to treat the question on this occasion generally, but only so far as it affects the Glastonbury ceramic finds. The late Mr. Romilly Allen in describing Late-Celtic art, classified the ornament under the following headings:—

- a.* Curvilinear Geometrical designs.
- b.* Rectilinear Geometrical designs.
- c.* Designs derived from foliage.
- d* and *e.* Anthropomorphic and Zoomorphic patterns.

The latter types (*d* and *e*) are exceedingly rare in the British Isles, and it is a questionable matter how far the examples bearing these designs can be considered indigenous works of art. However, as neither Anthropomorphic or Zoomorphic designs have so far been found applied to Late-Celtic pottery it will not be necessary to consider them further. On the other hand Zoomorphic patterns are not unknown on Continental pottery of the La Tène periods.

With regard to the designs derived from foliage, there was undoubtedly a tendency in early La Tène art to borrow naturalistic motifs from the classical

1. *Proc. Soc. Antiq. Lond.*, XXII, 192, fig. 9, no. 8.

world and reduce them to geometrical schemes, but the adaptation was so remote and the transitional changes so great that by the time the designs arrived in Britain, the characteristics of the original motif were lost. The late Mr. Romilly Allen says, "Foliage so slightly conventionalised as to be easily recognised as

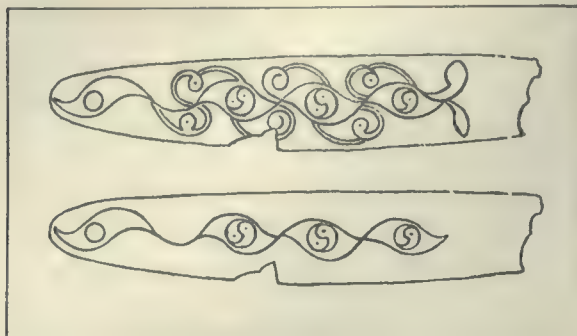


FIG. 160.—ENGRAVED BONE FROM SLIEVE-NA-CAILLIGHE, CO. MEATH, IRELAND.

such cannot be said to exist in Late-Celtic art."¹ We fail to recognize a foliaceous origin in any of the so-called flamboyant patterns on the British bronzes, and see no reason for attributing them to that motif any more than we should the flamboyant tracery in the windows of the Decorated period of architecture, which was gradually developed from less elaborate geometric designs. We believe the flamboyant and curvilinear patterns of Late-Celtic

art were evolutionized from the circle and spiral, and just as in the Bronze Age we find the chevron forming the basis of the characteristic ornament, so in the Late-Celtic period the chief motif was the circle.

For an example we will take the engraved bone from Slieve-na-Caillighe, Co. Meath, Fig. 160 (upper drawing).² The foundation of the design is the scroll-shaped pattern running through the centre, Fig. 160 (lower drawing), which happens to be a common one on the Glastonbury pottery, *see* P 106, P 128, Plate LXXIII, also Fig. 164. The ornament occupying the centre of three of the scrolls, *i.e.*, a circle enclosing two comma-shaped bodies, was evidently a development of the dot-and-circle pattern, but in the example before us instead of simple concentric circles the outer circle enclosed twin circles, *see* P 105, Plate LXXIII, also Fig. 164, while the pattern was evidently evolved in the manner depicted in Fig. 161. The remaining details of the design were developments of the same dot-and-circle pattern, the curved-shaped terminals being modified commas belonging to larger circles. It is quite possible the antennæ-like embellishments seen in the design ornamenting the wood tub, Vol. I, Plates L and LI, X2, are much exaggerated forms of the comma, and derived from the same motif.



FIG. 161.—DRAWING DEPICTING THE EVOLUTION OF THE COMMA ORNAMENT.

1. Romilly Allen's "Celtic Art," p. 148.

2. *Archæologia*, XLVII, Plate xxiv.

The designs on the Glastonbury pottery fall under the following headings :—

- A. Patterns used in the Bronze Age.
- B. Curvilinear Geometrical Designs.
- C. Combinations of Types A and B.
- D. Patterns borrowed from classical models.
- E. Patterns of a nondescript or primitive character.

A. BRONZE AGE PATTERNS.

These patterns occur frequently on the Lake-village pottery, either alone or combined with curvilinear designs. About one-third of the ornamented vessels

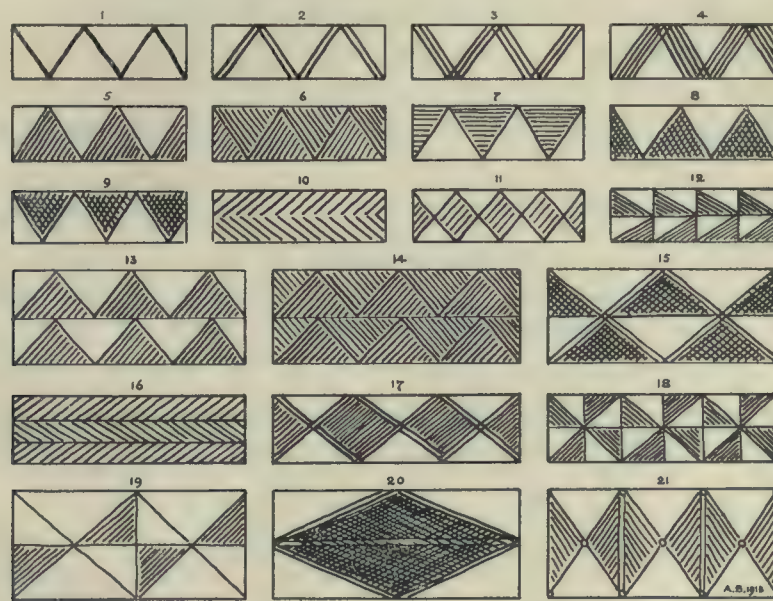


FIG. 162.—BRONZE AGE SURVIVALS ON GLASTONBURY POTTERY.

are decorated with bands of varying width in this way. Amongst the types of ornament are :—

- i. The Chevron and triangle.
- ii. The Saltire.
- iii. The Lozenge.

In Fig. 162 twenty-one drawings are given of the commonest designs.

i. Patterns derived from the chevron are very numerous and include (a) the Zigzag, which occurs as a single line, or parallel lines from two to six in number ; for examples refer to P 57, Plate LXXIX ; P 74, Plate LXXIV ; P 304, P 309, Plate LXXXVIII. (b) Nested Chevrons, P 292, Plate LXXXVII. (c) Chevron in which either the upper or lower row of triangles is shaded with parallel lines, P 265, Plate LXXX ; P 291, Plate LXXXVII. (d) Chevron in which both the upper and lower rows of triangles are shaded with parallel lines but in different

directions, P 157, Plate LXXXI; P 293, Plate LXXXVII. (e) Chevron in which the points of the V's are directed horizontally to the right or left, P 193, Plate LXXIX. These designs are common types of ornament amongst primitive peoples throughout the world, but in the British Isles and Europe they are characteristically Bronze Age, and had some of them adorned vessels of coarser paste at Glastonbury, there would probably have been little hesitation in ascribing them to that period. One, if not more of the designs occurs on Neolithic pottery in Southern Europe.

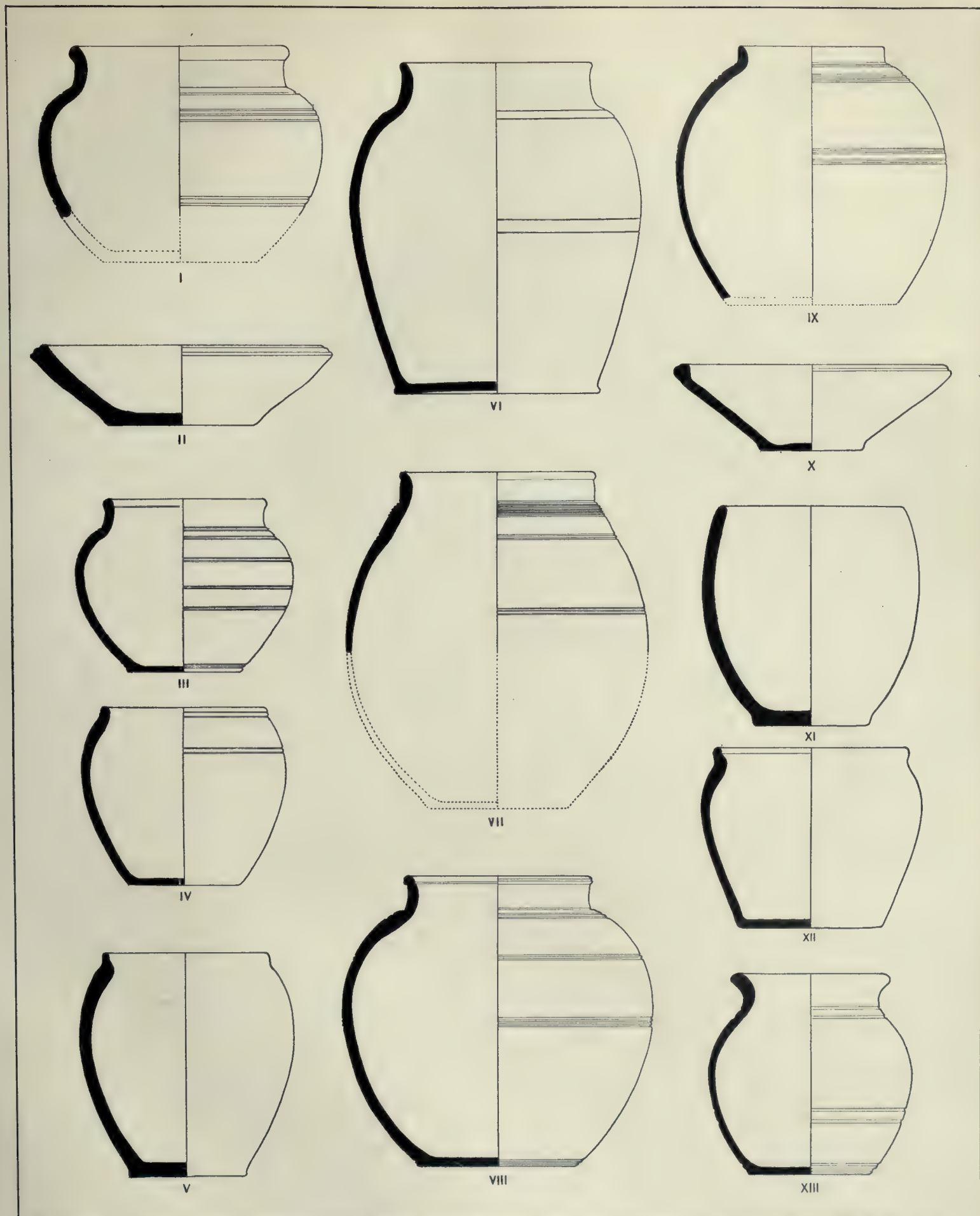
ii. The Saltire occurs shaded in different ways. On P 97, Plate LXXI, the right triangle is shaded with oblique lines, the left being occupied by a central ornament of the dot-and-circle pattern. On P 145, Plate LXXIV, the right and left triangles are shaded with oblique lines in different directions. This type of pattern was found in four dwelling-mounds.

iii. The Lozenge is found as a band of variable width, drawn in single line or with bars. Sometimes it is shaded with oblique lines, as on P 204, Plate LXXXI, and P 254, Plate LXXXIV; at other times with cross-hatching as on P 307, Plate LXXXVIII. It is not infrequently seen divided into triangles by horizontal and vertical lines drawn from angle to angle, as on P 154, Plate LXXVIII, the opposite triangles being shaded. A more elaborate ornament arising from this pattern is seen on P 55, Plate LXX. The lozenge in simple form occurs on P 311, Plate LXXXVIII. Coming under the heading of Bronze Age survivals mention should be made of the ornament produced by the impress of the finger-tip and nail, *see* P 266, P 267, and P 269, Plate LXXXV.

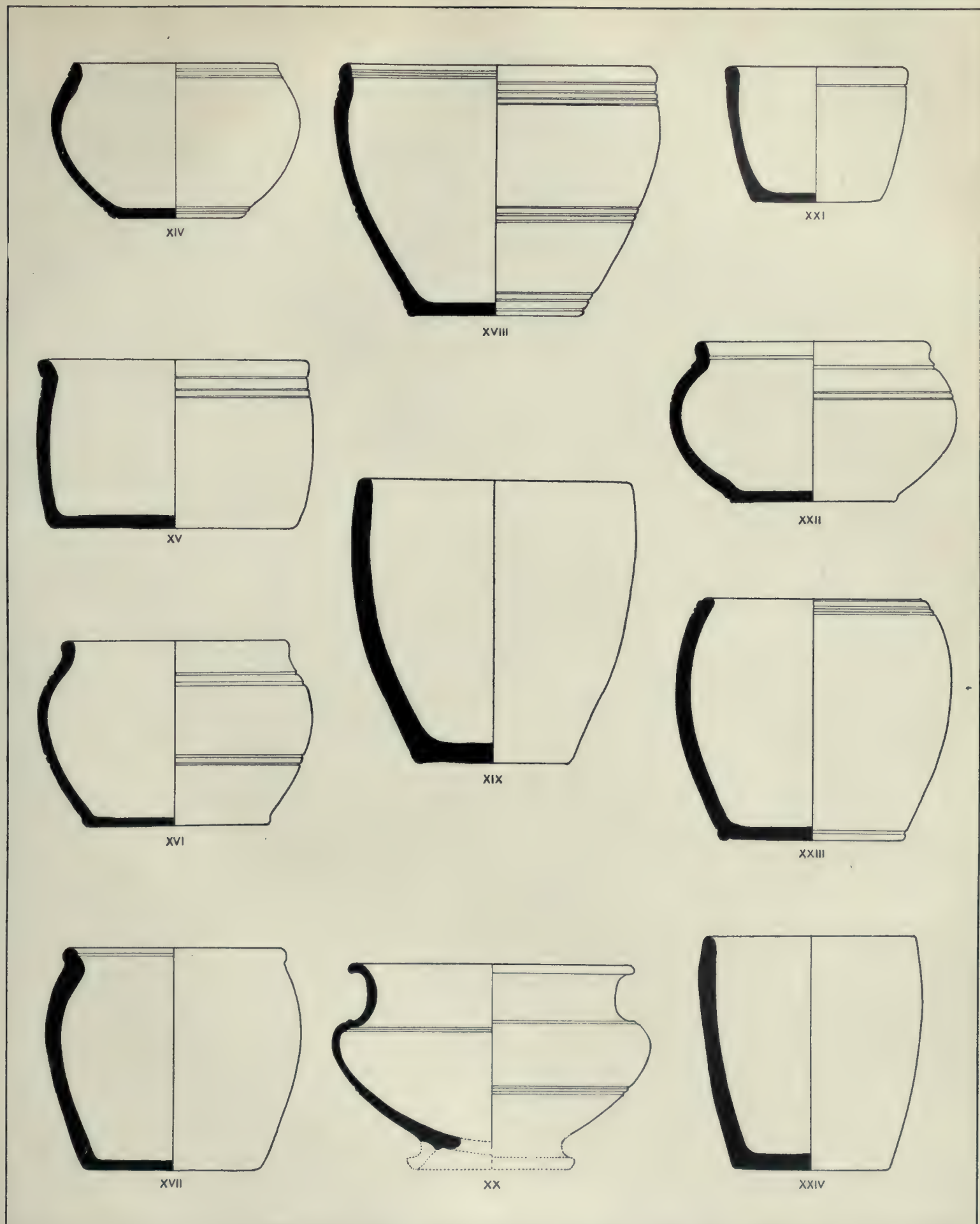
B. CURVILINEAR GEOMETRICAL DESIGNS.

Under this section are included the most important and interesting Glastonbury designs. The chief groups are those in which (i) the festoon or semicircle, and (ii) the scroll or S-shaped patterns are the dominating features.

i. Patterns with semicircles are found in great variety both as regards arrangement and detail. Examples of hanging semicircles are seen on P 244, Plate LXXXIII, P 262, Plate LXXXV, and P 284, Plate LXXXVI. Reversed semicircles on P 183, Plate LXXVIII, and P 256, Plate LXXXIV. Patterns in which the hanging and reversed semicircles are combined, *i.e.*, back to back, on P 32, Plate LXXI, and P 270, Plate LXXXV (the latter design being drawn with the roulette). Two interesting examples of hanging semicircles are seen on P 184, Plate LXXVIII, and P 260, Plate LXXXV, in which apparently a reversed semicircle has been added to complete the pattern. Arising from this motif is a considerable number of designs, some of which are highly decorative, produced by turning semicircles face to face and interlocking. In its simplest forms the design is seen in Fig. 163, I to VI. From these drawings can be traced



TYPES OF POTTERY FROM GLASTONBURY LAKE VILLAGE.
(About $\frac{1}{2}$ Natural Size).



TYPES OF POTTERY FROM GLASTONBURY LAKE VILLAGE.
 (About $\frac{1}{2}$ Natural Size).

the gradual development of a leaf-shaped space, the origin of which evidently had nothing whatever to do with foliage. Had example III, Fig. 163, been found alone, the dotted line through the middle of the space would doubtless have been regarded as a representation of a mid-rib. An example of the interlocking design in simple form may be seen on P 211, Plate LXXXI; and more advanced types of the ornament on P 26, Plate LXXI, P 185, Plate LXXVIII, P 216, Plate LXXXII, P 251, Plate LXXXIV, and P 303, Plate LXXXVIII. Two of the most elaborate and highly decorative designs arising out of the interlocking semicircle pattern are seen on P 56, Plate LXIX, and P 105, Plate LXXIII.

A beautiful bowl ornamented with a variant of the interlocking semicircle pattern was found at Red Hill III in Essex, and is now exhibited in Colchester Museum. Other interesting parallels in the above-mentioned designs have been found at Hengistbury Head (Hants), Wookey Hole and Ham Hill (Somerset), and the parish of St. Merryn (Cornwall). A vessel found at Small Pits, Cissbury, was ornamented with incised hanging semicircles, the bars being occupied with a row of rounded punch-marks. At Mount Caburn, Sussex, a pot was found with festooned lines under the lip; and at Elm Grove, Brighton, a vessel with incised hanging semicircles. From Hunsbury, an ornamented vessel in the Northampton Museum exhibits an upper band having a central design of returning spirals combined with reversed semicircles, and a lower band of hanging semicircles. Another vessel in the same museum has two

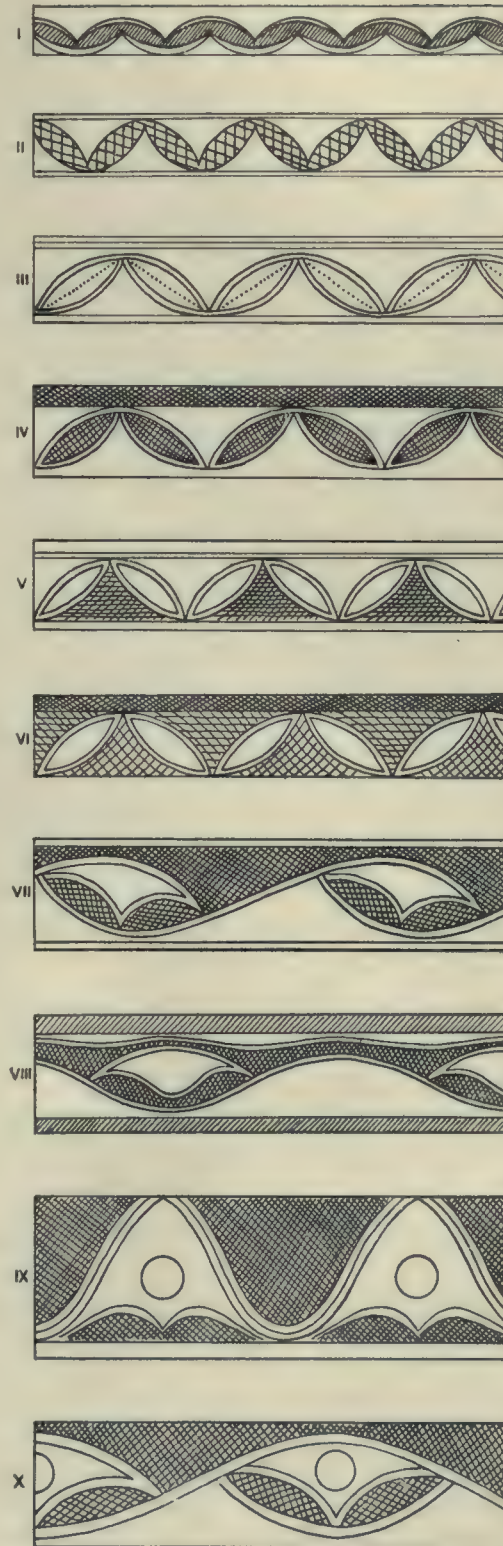


FIG 163.—DRAWINGS SHOWING THE DEVELOPMENT OF THE INTERLOCKING SEMICIRCLE DESIGN.

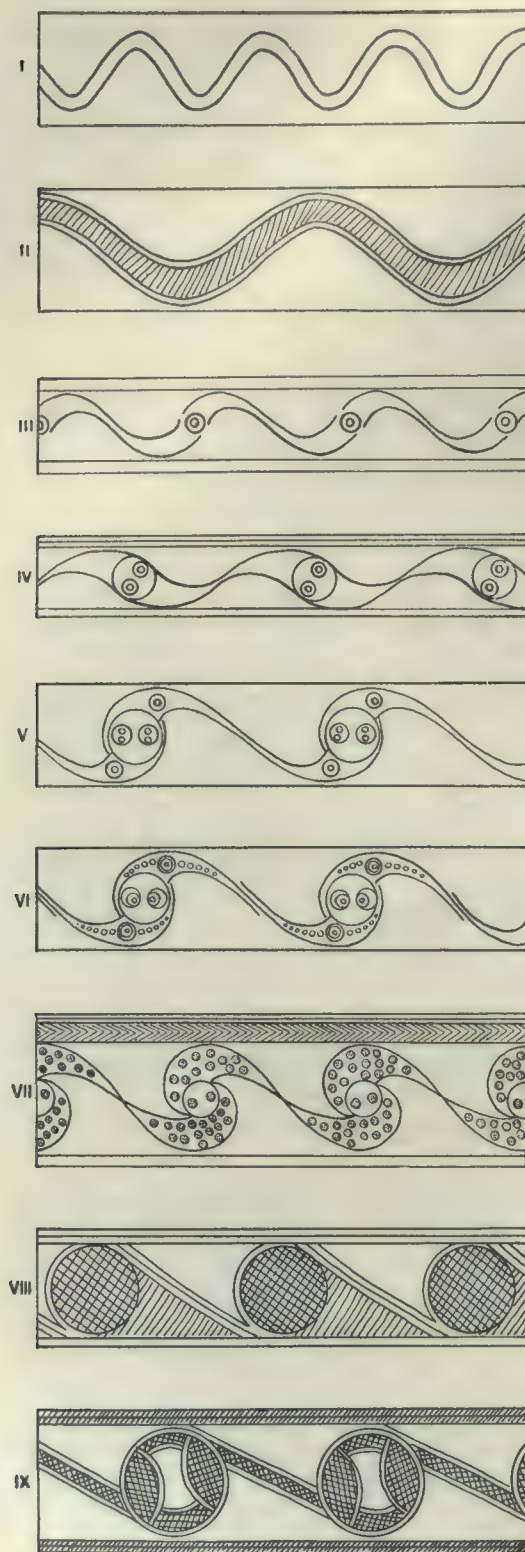


FIG. 164.—DRAWINGS SHOWING THE DEVELOPMENT OF
THE SCROLL DESIGN.

bands of hanging semicircles, and a third specimen is ornamented with a variety of interlocking semicircles, in which the curves are separated by girth grooves. At Wisley, near Weybridge, Surrey, a vessel was found ornamented with a single row of reversed semicircles. Amongst the La Tène pottery from Hallstatt is a specimen ornamented with reversed semicircles in the form of crescents, reminding us of the upper part of the decoration on P 56, Plate LXIX ; but, instead of being filled with lines, the semilunar spaces are occupied by a number of dots-and-circles. A second vessel from the same place is ornamented with nested semicircles drawn in dotted or rouletted lines. A similar pattern, but with incised lines, was found at Glastonbury. A vessel having the reversed semicircle pattern, very similar to one of the Hunsbury specimens, was found at Branbach, and a second is recorded from Rheinlands.

ii. The scroll or S-shaped pattern is also of common occurrence at Glastonbury, and forms one of the most interesting groups of ornamented pottery; examples of the design are to be seen on P 106, and P 128, Plate LXXIII, P 112, Plate LXXXVIII, P 129, Plate LXXIV, and P 253, Plate LXXXIV. The same pattern occurs at Wookey Hole and at the Meare Lake-village, but we know of no other specimens in the British Isles or on the Continent. The only pattern approaching it is that already mentioned on the engraved bone from Ireland (Fig. 160), and an embossed bronze plate found near Kettering.

With reference to Fig. 164, no one on

looking at the drawings III, IV, V, VI, and VII, can fail to recognize the same motif in all. The question therefore arises as to the development of the pattern. Are the designs to be looked upon as showing a gradual growth and advancement in the art of the inhabitants at Glastonbury, or do they denote a retrograde movement? Or, on the other hand, were the designs preconceived and brought to the Village by the first settlers?

Bearing upon the origin of design some light may be thrown upon the question by considering drawings x, y, and z, Fig. 165. The upper drawing x is the negative of pattern v, Fig. 164. If this is divided into an upper and lower section, it will be noticed that the wave-like appearance of y has a marked resemblance to the lower half, and that z is very similar to the upper half of x. The likeness in z is not restricted to the hanging wave portion, but also appears in the Δ (flat) shaped space which closely resembles the upper part of the white in x. In the present state of our knowledge of Late-Celtic design it will not be wise to be dogmatic, for the similarity in the drawings just described may perhaps be merely a coincidence, and other intermediate patterns may be forthcoming that show a development from the returning spiral.

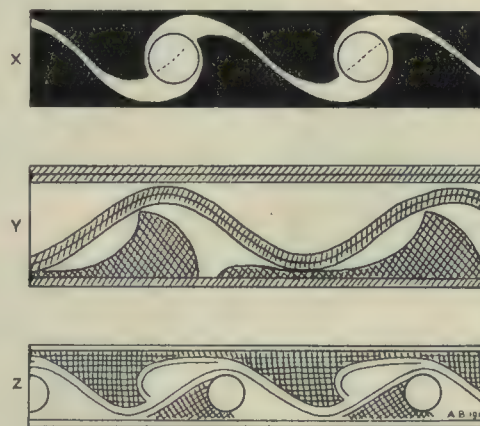


FIG. 165.—DRAWINGS SHOWING THE DEVELOPMENT OF WAVE DESIGN.

C. COMBINATIONS OF A. AND B. DESIGNS.

These designs occur occasionally, and it will only be necessary to refer to two examples. In P 56, Plate LXIX, interlocking semicircles are bordered by narrow bands of chevron. In P 188, Plate LXXX, a flowing design is combined with a band of chevron and another of shaded triangles.

D. PATTERNS DERIVED FROM CLASSICAL MODELS.

The only fragment coming under this heading and ornamented with a pattern approaching the classical in design is P 274, Plate LXXXVI. It will be noticed that the lines of this key-pattern are set diagonally, which is a feature of the Celtic designs in the early Christian period. In 1904 the late Mr. Romilly Allen stated that "the key-pattern or Greek fret is unknown in Late-Celtic art,"¹ but in the light of later discoveries this no longer holds good. Besides the Glastonbury

1. "Celtic Art," p. 160.

specimen a similar meander design, associated with other Late-Celtic objects, has been more recently found at Hengistbury Head, Hants.¹ In Hungary the oblique meander ornament occurs on pottery dating from the later Stone and Bronze Ages. In the British Isles we can so far only associate the design with objects of the prehistoric Iron Age, and assume it to be a pagan forerunner of the more elaborate Celtic patterns of Early Christian times.

E. PATTERNS OF A PRIMITIVE OR NONDESCRIPT CHARACTER.

Under this heading are included several ornamented vessels characterized by considerable roughness of design, and displaying a low standard of technical skill. Examples of these designs are to be seen in P 10 and P 143, Plate LXXIV, P 187, Plate LXXVIII, P 224, Plate LXXXII, P 241, Plate LXXXIII, and P 271, Plate LXXXVI. In the last-mentioned example it is difficult to realize the motive, and the design suggests a child's attempt at ornamentation more than anything else. Roughly drawn patterns have been found at other Late-Celtic sites; for instance in Northampton Museum there are portions of two vessels from Hunsbury ornamented with widely drawn incised vertical lines somewhat resembling the ornament on P 187, Plate LXXVIII, from Glastonbury. Examples have also been found at Wookey Hole.²

VII. ORNAMENTED BASES.

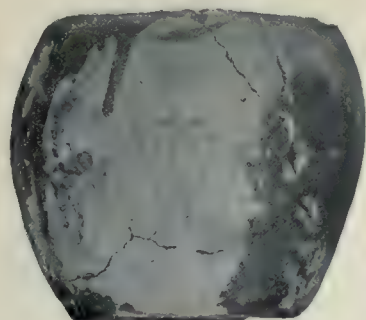
Examples of bases having incised or punctured designs are rare amongst Romano-British pottery, but in the Bronze Age the under-surface was frequently ornamented. During the La Tène periods or Prehistoric Iron Age in Britain the custom was still in vogue, and in some districts ornamented bases are sufficiently numerous to characterize the pottery. So markedly is this the case at Glastonbury that M. Déchelette draws our attention to the decorative resemblances existing between the vessels from the Lake-village and Armorica.

Twenty-five pots were discovered at Glastonbury with designs on the under-surface; ten out of this number were found in Dwelling-mounds XLVIII and XLIX. Dwelling-mounds XVIII and LXIV yielded two examples each. The other Dwelling-sites producing bases with incised patterns were IV, V, VIII, IX, XV, XXII, XXXVIII, XLIV and LVII.

With three exceptions the Glastonbury patterns consist of some arrangement

1. "Excavations at Hengistbury Head" (1915), Plate xxi, Class F, figs. 1, 2.

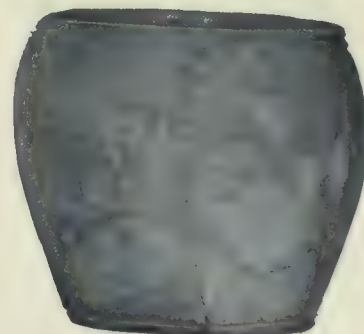
2. We are indebted to Mr. Rupert Austin, A.R.I.B.A., for the following drawings. Plate lxx, figs. i, iii, iv, v, vi, vii, viii, and ix. Plate lxxiv, figs. 122, 127, 302. Plate lxxix, figs. 57, 193, 194, 198, 199. Plate lxxxvi, figs. 276, 277, 278, 279, 280, 281, 282. Plate lxxxvii, figs. 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301. Plate lxxxviii, figs. 303, 304, 305, 307, 308, 309. The remaining illustrations were drawn by Messrs. J. and D. Frater, Edinburgh.



P147



P138



P6



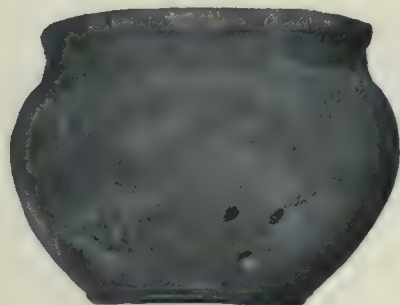
P117A



P172



P100



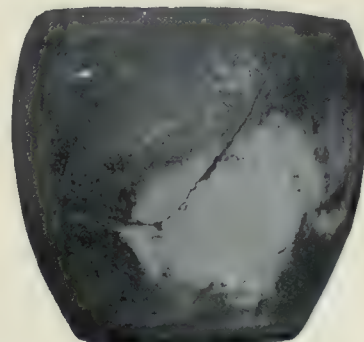
P173



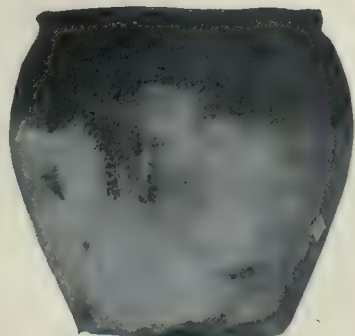
P44



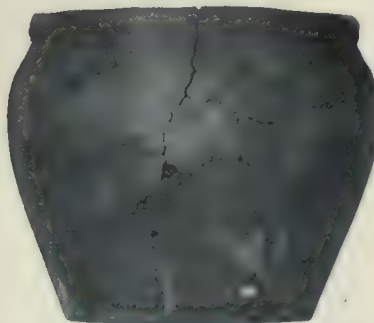
SCALE IN INCHES



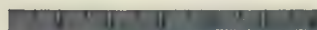
P176



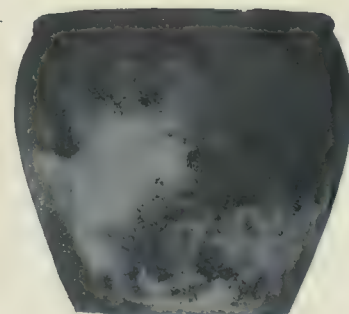
P136



P53



SCALE IN INCHES



P141

POTTERY FROM GLASTONBURY LAKE VILLAGE.

of segments of circles engraved in single or double lines with a blunt-pointed tool. The curves are usually reversed and frequently intersecting, the spaces enclosed by the overlapping grooves being sometimes shaded with hatching. The commonest design was that of P 15A, Fig. 166, of which six examples were found. Next in order of frequency was the pattern from Mound IX, Fig. 166. In two specimens cruciform lines were combined with semicircles, P 56 and P 106, Fig. 166. In P 143, Plate LXXIV, a dotted pattern is seen combined with incised curves.

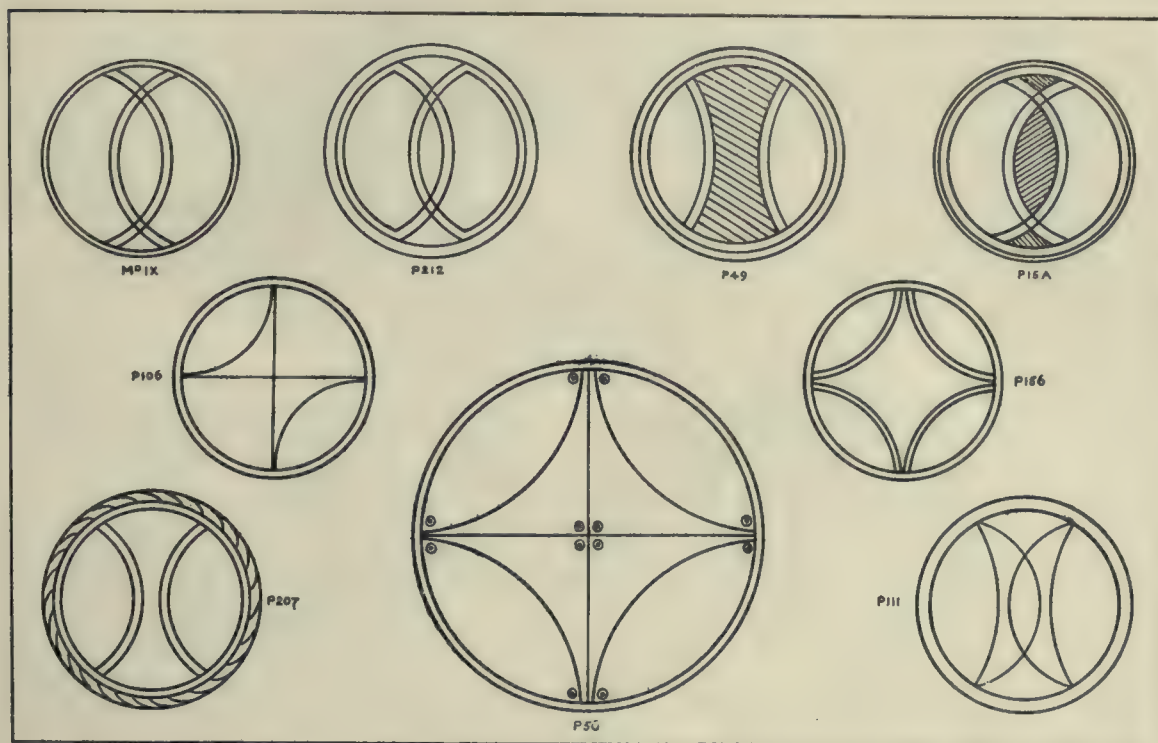


FIG. 166.—TYPES OF ORNAMENTED BASES FROM GLASTONBURY LAKE VILLAGE.

Thurnam writing on Bronze Age pottery says "a larger proportion of incense cups than of any other form of British sepulchral vessels exhibit some ornament at the bottom,"¹ and mentions that out of fifty-five examples twelve had ornamented bases. In England and Scotland the under-surface of Bronze Age food-vessels are occasionally ornamented, but in Ireland they occur far more frequently. Out of eighty food-vases from the North of England only four were ornamented, whereas from the same total in Ireland eighteen had designs on the under-surface. The pattern occurring with greatest frequency is cruciform. The cross is formed

1. *Archæologia*, XLIII, 368.

either by a single incised or a dotted line, with the ground-work shaded with lines or dots. Sometimes the cross occurs as two broad bands of dotted lines. Another common design consists of a circle, or circles, arranged concentrically; in some the intervals between the lines are left plain; in other examples the spaces are shaded with dots. Out of eighteen Irish examples eight were ornamented with some variation of the cruciform pattern. The Hon. John Abercromby in his work on Bronze Age Pottery gives fifteen illustrations of ornamented bases, ten

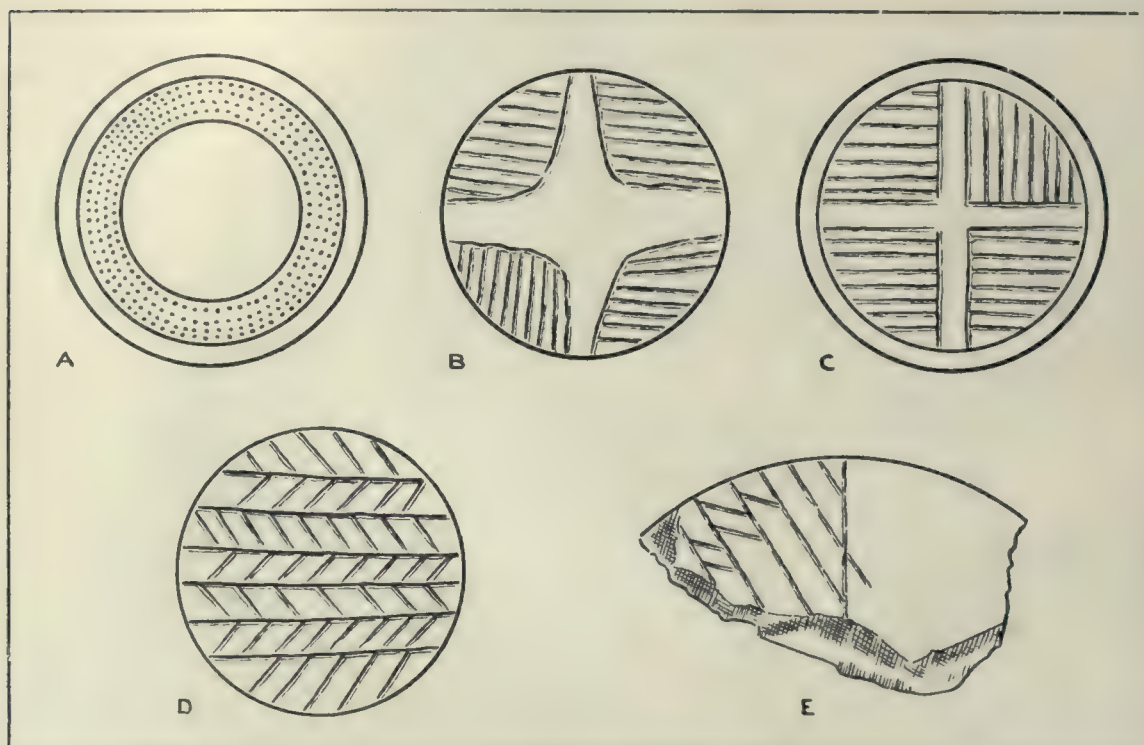


FIG. 167.—A, B, C, D, TYPES OF BRONZE AGE ORNAMENTED BASES. E, ORNAMENTED BASE FROM GLASTONBURY LAKE VILLAGE.

of which have cruciform designs, one concentric circles, two with cross and circles combined, two with semicircles. Out of a total of 475 vessels of all kinds thirty were ornamented with a cruciform design and thirty-two with some other form of decoration.

In Fig. 167, drawings A, B, C are examples of Bronze Age bases with cruciform and concentric circle designs. Drawing D is a Bronze Age base from Mynydd Carn Goch, Glamorganshire, having a design suggesting a chevron with the points of the V's alternately reversed. This ornament is specially interesting because the accompanying fragment E, Fig. 167, was found at Glastonbury, and although the pottery was weathered and the greater part of the pattern lost, the similarity in the treatment of the two designs is very marked.

Amongst the Glastonbury pottery a good many bases were ornamented with simple grooves drawn parallel with and near the border. A good example of this is P 196, Plate LXXIX, which has two grooves.

With reference to the Late-Celtic pottery of other localities, the same types of ornament are found at the Meare Lake-village. At Wookey Hole Mr. Balch has found only one ornamented base; the design consists of three cross lines, drawn with a blunt-pointed implement, dividing the bottom into six nearly equal parts. Mr. Gray informs me that a base ornamented with the reversed crescent pattern, exactly similar to P III, Fig. 166, is in Weston-super-Mare Museum and was found at or near the Cheddar caves. Ham Hill, Somerset, has produced one base ornamented with two parallel grooves similar to P 196, Plate LXXIX. Three vessels from Shobury, Essex, now in Colchester Museum, exhibit single shallow grooves. At Northampton Museum Mr. George showed me part of a base from Hunsbury ornamented with a lightly incised continuous line of loops. A fragment having a similar scribbled pattern was found at Glastonbury, and amongst the Romano-British pottery in Chester Museum a third example may be seen. The same pattern occurs also on the under-surface of black Romano-British pottery from Preston Plucknett, Puckington, and Barrington (Somerset), and on dishes from Silchester, in Reading Museum. At Chingford Museum, Essex, there is a base of hard red ware ornamented with single cross lines probably belonging to the first or second century A.D.

Illustrations of examples of bases from Glastonbury may be seen in the following plates :—

P 49, P 143, Plate LXXIV; P 156, Plate LXXVIII; P III, P 196, P 199, Plate LXXIX; P 207, P 212, Plate LXXXI; P 280, Plate LXXXVI.

VIII. CORDONED AND ZONED VESSELS.

Unfortunately no cordoned or zoned vessel was found in any way approaching completeness, but the fragments discovered show considerable elegance of form. The inverted cone-shaped vases with long tapering body and broad expanding foot, as found in the urn-field at Aylesford and at Welwyn in Herts, are unknown at the Lake-village. The Glastonbury examples were apparently more globular in shape, standing on well moulded feet. The under-surface of the base was hollow, sometimes with an omphaloid depression at the centre; at other times flat, and rarely arched. The paste was generally of the finest quality, free from grit and other coarse ingredients, of



FIG. 168.—BASE OF CORDONED VESSEL
WITH OMPHALOID DEPRESSION,
GLASTONBURY LAKE VILLAGE.

dark brownish-black colour, smooth and burnished. The vessels in several instances were wheel-made.

The largest fragment of cordoned ware is P 275, Plate LXXX (Mound L), and the most interesting pieces of zoned ware are P 190, Plate LXXX (Mound XXI) with an omphaloid depression, *see* section, Fig. 168; and P 124, Plate LXXIII.

Zoned and cordoned vessels were found in the following Dwelling-mounds, II, V, VIII, IX, XII, XIII, XXI, XXIII, XXIV, XXXVIII, XLII, XLVIII, XLIX, L, and LXXXIII. Fragments of five distinct vessels were found in Mound XLIX, and two in Mound XXIV.

With reference to the zones, some were bordered by girth grooves, others by cordons. In some examples the zones were plain throughout, in others the alternating bands were plain and cross-hatched, or with burnished and matt surfaces. The zones varied from $\frac{5}{8}$ to $1\frac{3}{16}$ ins. in width, and the cordons from $\frac{3}{16}$ to $\frac{5}{16}$ in.

P 282, Plate LXXXVI, illustrates a fragment of ware found in Mound LVI, ornamented with alternating plain and shaded zones, separated by girth grooves. The piece belongs to the lower part of a vessel, immediately above the foot.

IX. VESSELS WITH PERFORATED SIDES AND BASES.

Twelve pots with perforated bases and five with holes either in the body or the rim of the vessel were found at the Village. Two examples were discovered in each of the Dwelling-mounds, XVIII, XXIV, XLIX, and LXVII, and single specimens came from II, XV, XXII, XXX, XXXVII, XLII, XLVI, LIX, and LXX. The number of perforations in the bases ranged from one to seven, and the holes in the sides from one to three. In size they varied from $\frac{3}{16}$ to $\frac{5}{8}$ in. in diam. In the bases with a single perforation the hole was at or near the centre, and in the examples with multiple perforations the holes were arranged in a ring at variable distances round a central hole. As a rule the perforations were made before the vessels were fired, and generally when the paste was soft, but in several instances the vessel had been dried before the holes were cut, for the margins show chipping and irregularities due to the brittleness of the paste.

With reference to the purpose of the holes in the base, various suggestions have been made, but at the present moment the theory that attains greatest popularity is that the vessels were used as colanders for straining honey. Pots with one or more holes low down in the side may possibly have served the same purpose, but the single perforations occurring higher up in the body or through the rim were made for other reasons. With regard to the Glastonbury pottery there is no evidence to support the view that the last-mentioned holes were intended for rivets.

Vessels with perforated bases and sides are not unusual. Amongst the vessels



POTTERY FROM GLASTONBURY LAKE VILLAGE.
(About $\frac{1}{2}$ Natural Size).

from the R.B.V. Woodcuts, Dorset, was a pot of black ware having two holes in the bottom.¹ A second example from the same site had one perforation in the base and one in the side near the foot.²

Several perforated bases were found amongst the Late-Celtic pottery from the inhabited site near All Cannings Cross Farm, Wilts, and one or more vessels had holes in the sides.³

In Devizes Museum there is a Late-Celtic pot from Casterley Camp, Wilts, with six holes in its side; the circular perforations are of unequal size and average $\frac{3}{8}$ in. in diam.

Reading Museum contains a portion of a large hand-made vessel of coarse paste, with three irregularly-shaped holes in the base, arranged triangularly, and another example of coarse dark ware has four circular holes low down in the side from $\frac{1}{8}$ to $\frac{3}{16}$ in. in diam. In Colchester Museum there is a perforated base of red ware having three circular holes of unequal size. At Chingford Museum is exhibited a perforated base of dark ware having seven holes, averaging $\frac{3}{8}$ in. in diam., and a second vessel of light-coloured ware perforated with one central hole in the base.

A vessel of red ware with holes was found at Cobham, Surrey, and another pot of grey ware comes from Farnham.⁴ A perforated rim of Late-Celtic ware was obtained from an inhabited site in Cornwall; and a vessel of dark grey paste with black burnished surface, having a perforated base, was found at Cadbury Camp, South Somerset.⁵ A vase from Fordingbridge, Hants, has one large central perforation in the base.⁶ A late Bronze Age or early Late-Celtic vase found at Latton, N. Wilts, had two perforations through the pedestal.⁷

Perforated bases have been found in the Early Iron Age stronghold of Hradischt, near the village of Stradonic in Bohemia.

With reference to Bronze Age vessels, a pot having a perforated base was found in a barrow at Lake, Wilts, and another in the chambered long-barrow at West Kennet in the same county.⁸

The following typical examples of Glastonbury vessels with perforations have been illustrated,—P 8, Plate LXXII; and P 188, P 189, Plate LXXX.

1. P.R. *Excavations*, I, Plate xxxiv, fig. 8.
2. *Ibid.*, I, Plate xxxv, fig. 11.
3. *Wilts Arch. Mag.*, XXXVII, 534.
4. *Surrey Arch. Collections*, XXII, 149.
5. Taunton Museum (Bennett Coll.).
6. *E.I.A. Guide*, B.M., 141.
7. *Wilts Arch. Mag.*, XXX, 303.
8. *Archæologia*, XLIII, 343.

X. VESSELS WITH EARS OR LUGS.

Fragments of pottery with lugs were found in the Dwelling-mounds, V, XIV, XVIII, XXII, XXIII, XXXV, XXXVIII, XLII, XLIV, LII, LXIV, LXXIV, and LXXXI. The lugs (called eyelets or loops by Pitt-Rivers) are divisible into several types, according to the method of attachment, position, or shape. At Glastonbury they varied in size from a small projection $\frac{3}{8}$ in. above the surface of the vessel to a ring $2\frac{1}{2}$ ins. in diam., with a perforation large enough to admit a finger, and approaching both in dimensions and shape a true handle. Twelve out of the thirteen examples were attached vertically (*see* Figs. P 61, P 181, P 182, Plate LXXIX); the remaining lug was placed horizontally. In the commonest variety the surface of the pot was indented with a long horizontal groove, and as much as one-half the diameter of the perforation was countersunk below the external surface of the pot when looked at in profile. On the inner surface a rounded ridge corresponded to the groove. A large proportion of the lugs were of semicircular outline when viewed sideways, but a few had a somewhat angular appearance. The lugs were either bands or rolls of clay attached to the vessel when the paste was soft and in a plastic condition. In cross-section the majority were plano-convex and varied at the middle of the arch from $\frac{11}{16}$ to $1\frac{1}{8}$ ins. in width, and from $\frac{1}{4}$ to $\frac{11}{16}$ in. in thickness. The perforations were generally circular, varying from $\frac{1}{4}$ to $\frac{3}{4}$ in. in diam. The lug attached horizontally (P 213, Plate LXXXI) was of semicircular outline, well moulded, and ornamented on the outer surface with incised cross-hatching. The vertical perforation was circular and $\frac{5}{16}$ in. in diam.

One imitation lug in the form of a pinched-up knob without perforation was found. Fragments of pottery with similar projections, intended only for ornament, are mentioned by General Pitt-Rivers;¹ and also occur amongst the pottery from Hengistbury Head, Hants.

Lugs were of common occurrence in the excavations of the Romano-British Villages of Woodcuts (Dorset) and Rotherley (Wilts); at the former site the percentage of the number of fragments with lugs to the total number of pottery sherds found was 0.29, and at the latter place 0.79. At Woodyates the percentage was only 0.03.² Woodcuts produced seventy-five lugs, whereas at Glastonbury thirteen were discovered. The shape of some of the Glastonbury vessels, especially those with lugs of an angular profile, was similar to some vases found at Woodcuts made of smooth black ware with a beaded rim.³

1. P.R. *Excavations*, I, Plate xxxix, fig. 3; and Plate liii, fig. 7.

2. *Ibid.*, III, 121.

3. *Ibid.*, I, Plate xxxiii, figs. 4, 5.

Lugs were found with the Late-Celtic pottery from All Cannings Cross Farm, Wilts.¹

Under the heading of Lugs should be mentioned one piece of smooth dark brownish-black ware found in Dwelling-mound XXXVII. This fragment is a portion of a low semicircular-shaped lug or ear which projected vertically from the upper margin of the rim of a vessel (Fig. 169). It was perforated with a circular hole $\frac{7}{16}$ in. in diam., two-thirds of which were below the level of the rim.

A vessel having a perforated lug of similar shape, but of slightly larger dimensions, was found at Hunsbury (Northampton Mus.). Another example was discovered at Chichester without a perforation (Brit. Mus.). A vessel (No. 22), having perforated projections of the same shape, was found on the site of a lake-dwelling, Corcelettes, Lake of Neuchâtel, and a second (No. 21) from the same place was without perforations.²

With reference to the date of the lugs or eyelet handles, the countersunk examples appear to be of later date than those which are entirely above the surface. For instance, P 61, Plate LXXIX, was found deep down in the foundation of Dwelling-mound LXIII. The counter-sunk examples were found at a higher level, especially those occurring on bowls with beaded rims, a type of pottery belonging to the latter part of the La Tène III period.

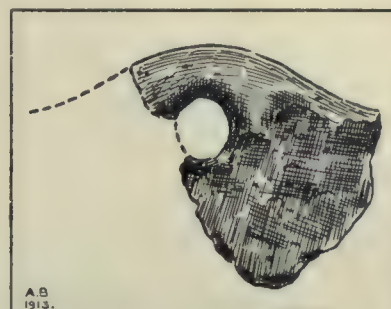


FIG. 169.—PERFORATED SEMICIRCULAR PROJECTION ON RIM OF VESSEL, GLASTONHURY LAKE VILLAGE.

XI. PIGMY VESSELS.

Five diminutive vessels come under this heading, namely, P 123, P 148, P 164, P 168, and P 197, the last four being illustrated in Fig. 170. A detailed description of each is given below. With reference to P 148 and P 197, which in shape approach Types VI and XIII respectively (Plate LXXV), it is difficult to suggest a use unless they were intended for toys. P 123, P 164 and P 168, however, are of more serviceable shapes and might possibly have been used in the preparation of pigments.

P 123. A small incomplete cup-shaped vessel, badly baked; max. ext. diam. of rim $2\frac{1}{2}$ ins.; max. ext. diam. of body $2\frac{1}{4}$ ins.; height (approx.) 2 ins.; average thickness of ware $\frac{7}{16}$ in.; paste light grey and friable; ext. and int. surfaces light grey, uneven.

Found 14 $\frac{1}{4}$ ft. N. of the c.p. of Dwelling-mound XLVII.

1. *Wilts Arch. Mag.*, XXXVIII, 540.

2. *L.D. of E.*, 56.

P 148. Small rough unornamented hand-made vessel; max. ext. diam. of rim 2ins.; max. ext. diam. of body $2\frac{3}{4}$ ins.; max. ext. diam. of base $1\frac{1}{2}$ ins.; height 3ins.; paste dark grey, coarse grained, with admixture of fragments of stone; ext. surface dark brownish-grey, nearly black in places, rough and uneven; int. surface dark brown, rough and uneven; rim slightly curved, lip everted, thin and irregular.

Found in the peat outside the palisading.

P 164. Small shallow hand-made vessel (*Proc. Som. Arch. Soc.*, L, ii, 77 and Plate ix); max. ext. diam. of rim $2\frac{1}{2}$ ins.; max. ext. diam. of base $1\frac{1}{2}$ ins.; height 1in.; paste light brownish-grey, coarse grained; both surfaces are rough and uneven and much pitted with small holes.

Found on the first floor of Dwelling-mound LV, 7ft. E. of the c.p.



FIG. 170.—PIGMY VESSELS FROM GLASTONBURY LAKE VILLAGE
 $\frac{2}{3}$ natural size.

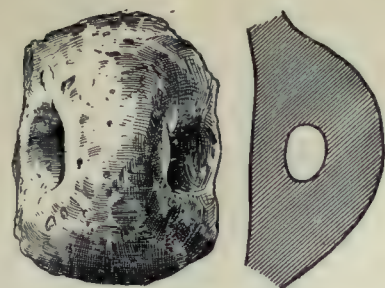
P 168. Small thick hand-made vessel (*Proc. Som. Arch. Soc.*, LI, ii, 100, and Plate v); max. ext. diam. of rim $2\frac{1}{2}$ ins.; max. ext. diam. of body $2\frac{7}{8}$ ins.; height $1\frac{1}{2}$ ins.; paste light brownish-grey, heavy, with admixture of quartz, feels sandy to the touch; inner surface is rounded and $1\frac{1}{4}$ ins. in depth; under-surface is slightly cupped; lip thin and uneven.

Found under the clay floors of Dwelling-mound LXX, 11ft. S.W. of the c.p.

Mr. L. Mc L. Mann states that a similar vessel was found in 1905 on the site of prehistoric dwellings in the Island of Coll (Hebrides).

P 197. Small bowl-shaped vessel; max. ext. diam. of rim $2\frac{1}{2}$ ins.; max. ext. diam. of body $2\frac{1}{2}$ ins.; max. ext. diam. of base $1\frac{1}{2}$ ins.; height 2ins.; paste dark grey, with large admixture of fine quartz sand; ext. surface dark brownish-grey, nearly black, smooth, burnished, no striæ; int. surface dark brownish-grey, fairly smooth, indented; rim everted, lip rounded.

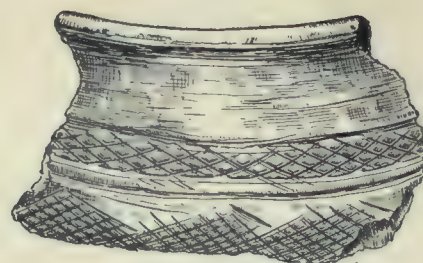
Found in Dwelling-mound LXIX.



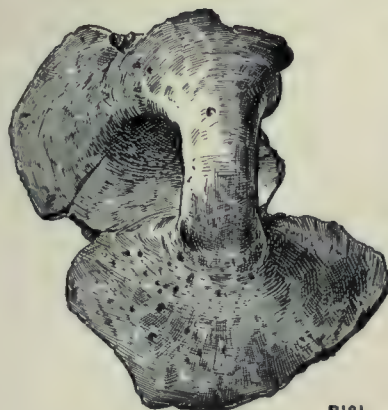
P61



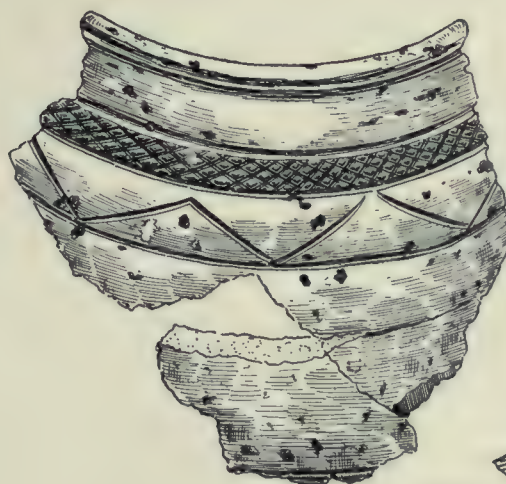
P193



P198



P181



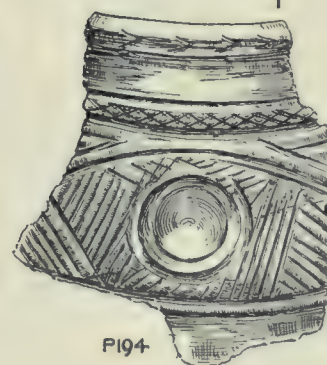
P57



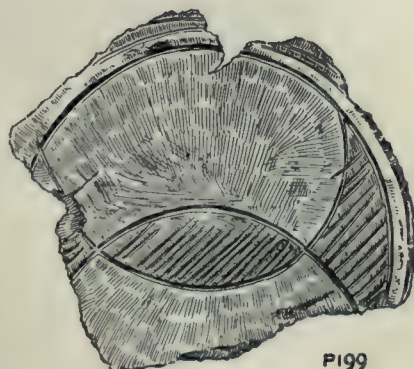
P182



P196



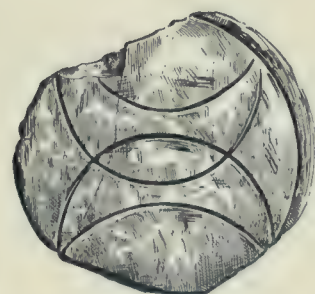
P194



P199



P111



POTTERY FROM GLASTONBURY LAKE VILLAGE.
(About $\frac{1}{2}$ Natural Size).

XII. SHALLOW GRAIN DISHES.

Seven shallow bowls or dishes were discovered in Mounds XXI, XXXVIII, XLIX, LXX, and LXXVII. Two out of the number, P 171 and P 172, Plate LXXVII, were found nearly complete in Mound LXX, associated with quantities of charred grain. All the vessels of this type were made of coarse thick pottery, and in three instances the rims were ornamented with grooves; one of these, P 272, is illustrated in Plate LXXXVI. A description of the more perfect specimens will be found in the general list of pottery, and two are to be seen amongst the drawings of type shapes in Plate LXXV.

PLATE LXIX.

P 56. This large vessel was one of the most notable ceramic finds at the Lake-village. While the shape is unusual (Type vi, Plate LXXV) the ornamentation of both body and base is of exceptional interest. The shape approaches a sepulchral vase found at Plouhinec, Finistère, which was considered by the late M. Déchelette to belong to the period of La Tène I.

Max. ext. diam. of rim $6\frac{1}{2}$ ins.; max. ext. diam. of body $10\frac{1}{2}$ ins.; max. ext. diam. of base $6\frac{1}{2}$ ins.; height 10 ins.; average thickness of ware $\frac{3}{8}$ in.; paste, lightish grey, rather soft and crumbling, mixed with quantities of small stone and grit; ext. surface, darkish grey, smooth, tooled vertically, burnished at places, no horizontal striæ; int. surface dark grey, no striæ; rim plain, nearly vertical, external surface slightly concave, lip rounded.

Ornamented on shoulder and upper part of body with a band 4 ins. in width. The design consists of interlocking semicircles bordered above and below by narrow bands of chevron. Where the semicircles meet the pattern is embellished with a row of small concentric circles placed vertically, and a similar row of ornament occupies each triangular space parallel with the chevron border.

The foot of the vessel is beaded; the base is slightly hollow and is ornamented with a cruciform design (see P 56, fig. 166).

Found 6 ft. N.E. of the c.p. of Mound XLVI, 1893.

PLATE LXX.

Fig. i. Fragment of a globular-shaped bowl from Wookey Hole.

Max. ext. diam. of rim $7\frac{1}{2}$ ins.; max. ext. diam. of body $9\frac{1}{2}$ ins.; average thickness of ware $\frac{5}{16}$ in.

Paste dark grey, coarse grained, containing fragments of stone. Ext. surface brownish-black, burnished, uneven, with vertical and oblique tool-marks on body, and horizontal marks on the rim. Int. surface brownish-black colour, rough, gritty, and uneven, marked with vertical scratches. Rim nearly vertical, lip rounded, ornamented with a girth groove on ext. surface.

Ornamented on shoulder with a band 1 $\frac{1}{2}$ ins. in width, the design being a double row of reversed chevron. The band is bordered above and below by three girth grooves, the space between the second and third grooves in the upper set, and the first and second in the lower, being filled with a line of indentations made with a blunt point.

The fragment was lent by Mr. H. E. Balch, and both shape and ornamentation approach that of some of the Glastonbury specimens.

Fig. ii. Fragment of an ornamented bowl found near the entrance of Gough's Cave at Cheddar.

Max. ext. diam. of rim 6 ins.; max. ext. diam. of body 7 ins.; thickness of ware varies from $\frac{1}{4}$ to $\frac{5}{16}$ in.

Paste dark brownish-grey, clay mixed with fragments of calcite. Ext. surface dark brownish-grey flecked with white spots, smooth and burnished, no striæ. Int. surface same colour as ext. surface, fairly smooth but indented, and with shallow cracks. Rim slightly inverted, lip rounded with groove on inner surface.

Ornamented with a low cordon at junction of rim and shoulder, and a band of curvilinear design, evidently derived from the interlocking semicircle pattern, and similar to P 245, Plate LXXXIII. The ground is shaded with diagonal cross-hatching, and the triangular space is occupied with a circular depression which shows as a bulge on the inner surface.

This specimen was lent by Mr. Gough of Cheddar, Somerset.

Fig. iii. Fragment of the upper part of a large globular bowl. Paste light red colour; has probably been fired a second time. Ext. surface greyish-brown (the perfect vessel was probably black and lustrous), smooth, without striæ. Int. surface rough and uneven.

Ornamented with a band 1½ ins. in depth consisting of a design in which semicircular lines occur reversed and nested, bordered by girth grooves. The ground above is shaded with diagonal cross-hatching.

Fragment was found on Ham Hill, Somerset, and forms part of the Walter Collection in Taunton Mus.

Fig. iv. Fragment of a small hand-made bowl. Paste dark grey, hard baked, with large admixture of quartz grains. Ext. surface varies from reddish-brown to black, smooth but uneven, highly burnished. Int. surface rich reddish-brown, smooth but uneven; has a glazed appearance.

Ornamented with a broad waved groove and circular depressions in the furrows. A similar design without the depressions was found at Glastonbury, P 186, Plate LXXVIII.

From Ham Hill (Walter Collection, Taunton Mus.).

Fig. v. Fragment of a small bowl. Paste grey, with large admixture of quartz grains. Ext. surface dark grey, smooth and burnished, no striæ. Int. surface grey, speckled with whitish grains, gritty to the touch.

Ornamented with a band of zigzag design, bordered by girth grooves, the upper triangles shaded with diagonal cross-hatching. A very similar pattern occurs on P 225, Plate LXXXIII, from Glastonbury.

From Ham Hill (Walter Collection, Taunton Mus.).

Fig. vi. Small fragment of the upper part of a bowl-shaped vessel. Paste greyish-brown, containing quartz grains. Ext. surface dark grey, originally black, smooth and burnished. Int. surface dark brownish-grey, rough and uneven. Fragment has probably been baked a second time.

Ornamented with a band of lozenge-shaped spaces bordered by girth grooves. The lozenge spaces are divided by a central groove so as to produce two rows of triangles. The lower triangles in each row are shaded with cross-hatching. This design occurs at Glastonbury, *see* P 201, Plate LXXXI.

From Ham Hill (Walter Collection, Taunton Mus.).

Fig. vii. Small fragment of the lower part of a vessel. Paste brownish-grey, with large admixture of quartz grains. Ext. surface dark brownish-grey, smooth and burnished. Int. surface brownish-grey, uneven, gritty to the touch.

Ornamented just above the base with a band of zigzag lines, and on the body bands occur shaded with diagonal cross-hatching. The lines are deeply incised with a blunt point.

From Ham Hill (Walter Collection, Taunton Mus.).

Fig. viii. Fragment of a small hand-made bowl. Paste dark grey, with large admixture of quartz grains, heavy and hard baked. Ext. surface smooth and coated with a black varnish.

Ornamented with a keel-shaped vertical ridge flanked by groups of rounded indentations.

From Ham Hill (Walter Collection, Taunton Mus.).

Fig. ix. Small fragment of a hand-made bowl. Paste dark grey, of fine texture, with small admixture of stone and fine quartz grains. Ext. surface smooth, highly burnished or coated with a black varnish. Int. surface also coated with black varnish.

Ornamented with a keel-shaped vertical ridge, which was applied separately to the surface of the vessel. The ridge is bordered on either side by a smaller line of triangular-shaped indentations.

From Ham Hill (Walter Collection, Taunton Mus.).

With reference to Figs. viii and ix, the keel-shaped ornamentation does not appear on any of the Glastonbury pottery, but the shape and texture of the two fragments are similar to several examples from the Lake-village.

Keel-shaped ridges occur on Bronze Age pottery (P.R. *Excavations*, IV, Plates 240, 300). The same ornament occurs on a fragment of black pottery from the R.B.V., Rotherley, associated with fragments of undoubted Late-Celtic ware (P.R. *Excavations*, II, Plate 114). Vessels bearing this ornament have been found near Weymouth (Brit. Mus.), and at Jordan Hill, Weymouth (Dorchester Mus.). Vertical ridges occur on lake-dwelling pottery of an early date in the Po Valley district (Peet's "Stone and Bronze Ages in Italy," Plate III, figs. 11, 14; and *L.D. of E.*, Figs. 66, 67).

P 55. A large globular bowl of fine proportions. Type VIII (Plate LXXV).

Max. ext. diam. of rim $6\frac{1}{2}$ ins.; max. ext. diam. of body $10\frac{1}{2}$ ins.; height $9\frac{5}{8}$ ins.; average thickness of ware $\frac{3}{8}$ in.

Paste brownish-grey, with admixture of fine sand. Ext. surface colour varies from buff to black, smooth and burnished, in places weathered and rough. Int. surface dark brownish-grey, smooth but indented; no striæ.

Ornamented with band 4 ins. in width, on shoulder and upper part of body; design consists of a series of four lozenge-shaped spaces, bordered above by a narrow band shaded with cross-hatching and below by three girth grooves. Each lozenge is divided by a vertical and horizontal line into four triangles, the opposite spaces being shaded with cross-hatching. The triangular spaces between the lozenges are equally divided by vertical lines, one-half of each being shaded. The foot and base are ornamented with two marginal grooves.

Found 4 ft. N.E. of the c.p. of Dwelling-mound XXI, 1893.

P 192. A hand-made vessel somewhat of the flower-pot shape. Type XVIII.

Max. ext. diam. of rim $7\frac{3}{8}$ ins.; max. ext. diam. of body $7\frac{1}{2}$ ins.; max. ext. diam. of base 4 ins.; height $5\frac{5}{8}$ ins.; average thickness of ware $\frac{1}{16}$ in. The drawing is $\frac{1}{4}$ natural size, and not $\frac{1}{2}$ as stated in Plate LXX.

Paste dark grey nearly black in places, spongy, friable, with admixture of white crystalline grains (calcite). Ext. surface varies from buff to black, smooth, pitted with small holes, numerous surface cracks. Int. surface varies from buff to dark grey, fairly smooth and even; no striæ.

Rim rounded, ornamented with two grooves on the inner surface, and vertical notches on the outer.

Body ornamented with a band, the design of which consists of a waved line, the ground above being shaded with lattice-work, bordered by four girth grooves above and three below. The foot is ornamented also with three grooves.

The whole design is deeply incised and of rough workmanship.

Found in Dwelling-mound XXX.

P 203. Part of a bowl found in twenty-eight fragments, about one-quarter of the vessel missing. Several pieces are baked red owing to secondary firing after fracture. Type III.

Max. ext. diam. of rim $5\frac{5}{8}$ ins.; max. ext. diam. of body $7\frac{1}{4}$ ins.; max. diam. of base 4 ins.; height $5\frac{1}{4}$ ins.; average thickness of ware $\frac{3}{16}$ in. The drawing is $\frac{1}{4}$ natural size, and not $\frac{1}{2}$ as stated in Plate LXX.

Paste dark grey or black, strong, with admixture of fine sand or grit. Ext. surface dark grey, smooth and burnished, horizontal parallel tool-marks on rim and foot. Int. surface dark grey, slightly pitted and uneven, no striæ. Rim nearly straight, lip rounded.

Ornamented on shoulder and body with a broad band of design, consisting of hanging and reversed semicircles in rectangular spaces, with a ground-work of fine incised cross-hatching, bordered above and below by narrow bands of cross-hatching. The foot is ornamented with two grooves.

Found in Dwelling-mound II.

PLATE LXXI.

P 15A. Ornamented bowl of Type III.

Max. ext. diam. of rim $6\frac{1}{2}$ ins.; max. ext. diam. of body $7\frac{5}{8}$ ins.; max. ext. diam. of base $4\frac{1}{4}$ ins.; height 5 ins.; average thickness of ware $\frac{5}{16}$ in.

Paste brownish-black, coarse texture, mixed with fine grit or sand. Ext. surface nearly black, smooth and burnished, no striæ, horizontal tool-marks round the rim. Int. surface dark brownish-grey, fairly smooth, indented. Rim straight, slightly everted, lip rounded.

Ornamented on shoulder and upper part of body with a band 1½ ins. in width, bordered on either side by two girth grooves. The design consists of flowing lines, the upper one returning upon itself forms a Δ (flat) shaped space; this and a circular depression are repeated four times. The ground is shaded with cross-hatching. Foot beaded. Base ornamented with reversed and overlapping semicircles, the enclosed spaces being shaded with oblique lines (*see* Fig. 166). The margin is ornamented with a narrow band, shaded with oblique lines representing rope-pattern.

Found with three other pots, 12½ ft. N.E. of the c.p., Dwelling-mound XLIV, 1893.

P 26. Part of an ornamented pot. Type XIII.

Max. ext. diam. of rim 5½ ins.; max. ext. diam. of body 6½ ins.; approx. diam. of base 4½ ins.; height 6½ ins.; thickness of ware varies from $\frac{3}{16}$ to $\frac{1}{2}$ in.

Paste dark grey nearly black, hard baked, mixed with a quantity of grit. Ext. surface varies from dark brown to black, smooth, burnished, no striæ. Int. surface nearly black, with vertical tool-marks. Rim heavy, overhanging, lip rounded and everted.

Ornamented with a band 4½ ins. in width, consisting of interlocking semicircles; the curves are formed by two parallel grooves enclosing a space shaded with a single line of oval-shaped dots. The design is bordered above and below by similar bands of ornament, and also repeated round the foot.

Found 24 ft. S.E. of the c.p. of Dwelling-mound LXIV.

P 31. Part of an ornamented bowl. Type XVI.

Max. ext. diam. of rim 5½ ins.; max. ext. diam. of body 6⅝ ins.; height 4 ins.; average thickness of ware $\frac{5}{16}$ in.

Paste dark brownish-grey, mixed with quantities of pounded quartz. Ext. surface varies from brownish-grey to black, smooth, burnished, pitted with small holes, no horizontal striæ. Int. surface varies from brown to black, fairly smooth, pitted, tool-marked. Rim slightly contracted, lip round and ornamented with groove on inner surface.

Body ornamented with a band consisting of parallel flowing lines, bordered above and below by two girth grooves. The ground below the flowing lines is divided into triangles which together with the ground above are shaded with cross-hatching. The foot is ornamented with a single groove producing a beaded appearance.

Found in Dwelling-mound LXIII, 1892.

P 32. Part of a small ornamented bowl. Type III.

Max. ext. diam. of rim 5½ ins.; max. ext. diam. of body 7½ ins.; height 4⅝ ins.; average thickness of ware $\frac{5}{16}$ in.

Paste dark brownish-grey, mixed with quantities of quartz grains and small pieces of stone. Ext. surface varies from dark grey to black, smooth, burnished, tool-marked, no horizontal striæ. Int. surface reddish-grey, rough and uneven. Rim nearly vertical, lip everted and rounded.

Ornamented on upper part of body with broad band of reversed semicircles, divided by two central girth grooves, the enclosed space being shaded with cross-hatching. The pattern is bordered above and below by three girth grooves shaded obliquely. Foot ornamented with two grooves. Base ornamented with one groove parallel with the margin.

Found in Dwelling-mound LXIV, 1892.

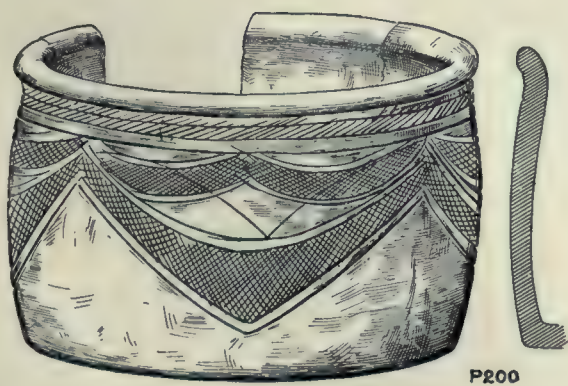
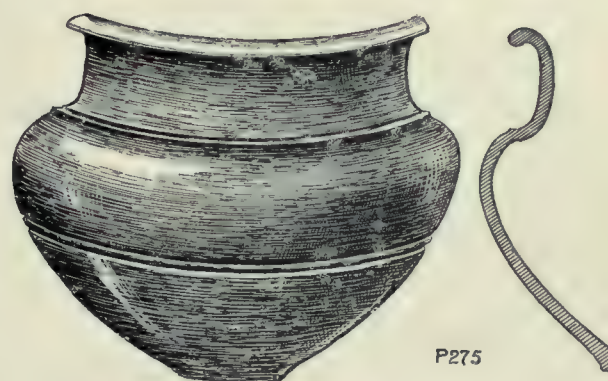
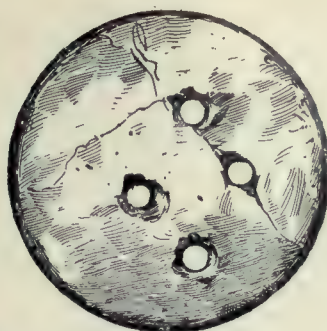
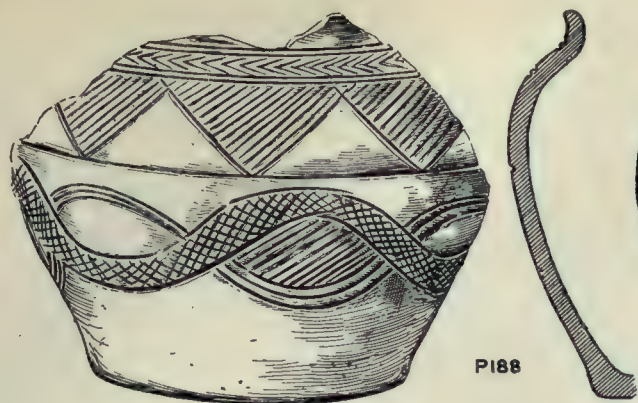
P 47. Part of a small ornamented bowl. Type III.

Max. ext. diam. of rim 5½ ins.; max. ext. diam. of body 6½ ins.; height 4½ ins.; average thickness of ware $\frac{5}{16}$ in.

Paste grey, hard baked, mixed with fine quartz grains. Ext. surface varies from light brown to dark grey, smooth, burnished; the fragment has evidently been fired a second time. Int. surface varies from grey to light brown, gritty to the touch, striæ absent. Rim vertical, lip rounded and everted.

Ornamented with a band on upper part of body; the design consisting of flowing lines is a variant of the pattern on P 15A. The ornament is bordered above and below by two girth grooves and shaded with oblique lines. The base is ornamented but there is not enough remaining to describe the pattern.

Found in the peat 23 ft. S.E. of the c.p. of Mound XLVI.



POTTERY FROM GLASTONBURY LAKE VILLAGE.
(About $\frac{1}{2}$ Natural Size).

P 97. Fragment of a large vessel. Type VII.

Max. ext. diam. of rim $6\frac{1}{4}$ ins.; max. ext. diam. of body $9\frac{1}{8}$ ins.; thickness of ware varies from $\frac{1}{8}$ to $\frac{7}{16}$ in.

Paste light grey, hard baked, texture fairly fine, contains a quantity of small grit. Ext. surface light grey, smooth where not weathered, tool-marks round rim, but no striæ. Int. surface brownish-grey, no striæ. Rim straight but slightly everted, lip rounded and everted, ornamented with a groove on both surfaces.

Ornamented on the shoulder, which is flattened, with six closely set parallel grooves and a row of concentric circles. The body is ornamented with a saltire pattern bordered above by two and below by three girth grooves. The saltire is barred; the right quarters are shaded with diagonal lines and the left occupied by a concentric circle pattern.

Found 14 ft. s.s.w. of the c.p. of Dwelling-mound XXI, 1893.

P 98. Part of a small ornamented bowl. Type III.

Max. ext. diam. of rim $5\frac{3}{4}$ ins.; max. ext. diam. of body $7\frac{1}{8}$ ins.; approx. height $4\frac{1}{2}$ ins.; thickness of ware varies from $\frac{3}{16}$ to $\frac{1}{4}$ in.

Paste light grey, hard baked, rather coarse with admixture of quartz grains. Ext. surface dark grey, fairly smooth, horizontal ridges and tool-marks on body but no striæ. Int. surface dark grey, fairly smooth, indented in places, no striæ. Rim straight, slightly everted, lip rounded and ornamented with groove on outer surface.

Shoulder ornamented with narrow band of design $\frac{7}{8}$ in. in width. The pattern consists of festoon and chevron combined; the festoon is repeated four times and separated by four triangles. The band is bordered above by three shallow girth grooves, and below by two. The lower part of the design is shaded with oblique lines. Foot ornamented with one shallow groove and the base by another near the margin (not shown in the illustration).

Found amongst the palisading posts, 16 $\frac{1}{2}$ ft. N.E. of the c.p. of Dwelling-mound II, 1894.

PLATE LXXII.

P 8. The lower part of a coarse hand-made pot; the base is perforated with five holes made before firing.

Paste brownish-grey, heavy, friable, clay mixed with grit and a vegetable substance probably chopped up reed or rush. Max. ext. diam. of base $4\frac{1}{4}$ ins.; holes in base irregularly circular, averaging $\frac{1}{2}$ in. in diam. Ext. surface weathered, grey, originally black and burnished.

Found in Dwelling-mound XLVI, 1893.

P 9. Large thick storage pot, found in many fragments (restored).

Paste brownish-grey, texture coarse; max. ext. diam. of rim 10 ins.; max. ext. diam. of body 11 $\frac{1}{2}$ ins.; height $9\frac{3}{8}$ ins.

Found 2 ft. N.N.W. of the c.p. of Dwelling-mound LXII, 1892.

P 19. Large thick storage pot, found in many fragments (restored).

Paste brownish-grey, texture coarse, heavy. Max. ext. diam. of rim 12 $\frac{7}{8}$ ins.; max. ext. diam. of body 13 $\frac{7}{8}$ ins.; height 12 ins.

Found 14 ft. s.s.w. of the c.p. of Dwelling-mound XXI, 1893.

P 22. The largest storage vessel found at the Lake-village. Paste brownish-grey, thick, and of coarse texture; contains quite large pieces of stone.

Max. ext. diam. of rim 12 $\frac{5}{8}$ ins.; max. ext. diam. of body 13 $\frac{7}{8}$ ins.; height 13 $\frac{1}{8}$ ins.

Found 11 $\frac{1}{2}$ ft. s. of the c.p. of Dwelling-mound XI, 1892.

P 42. Cooking-vessel. Paste of lightish grey colour, and of coarse texture.

Max. ext. diam. of rim $6\frac{1}{4}$ ins.; max. ext. diam. of body $7\frac{1}{2}$ ins.; height 7 ins.; average thickness of ware $\frac{5}{16}$ in.

Found 18 ft. E. of the c.p. of Dwelling-mound XLVI, 1893.

- P 43. Cooking-vessel. Paste dark grey, coarse and thick.
Max. ext. diam. of rim $6\frac{1}{4}$ ins. ; max. ext. diam. of body $6\frac{3}{4}$ ins. ; height $6\frac{3}{4}$ ins. ; ext. surface varies from light to dark grey.
Found $6\frac{1}{4}$ ft. s.s.e. of the c.p. of Dwelling-mound XLVI, 1893.
- P 45. Food-vessel, Type v. Paste of light red colour, heavy, with large admixture of stone.
Max. ext. diam. of rim $5\frac{5}{8}$ ins. ; max. ext. diam. of body $7\frac{1}{8}$ ins. ; height $7\frac{3}{8}$ ins. ; thickness of ware varies from $\frac{3}{8}$ to $\frac{9}{16}$ in.
Found during the excavation of Dwelling-mounds LXII—LXV, 1892. (Exact locality uncertain).
- P 120. Large storage pot, partly restored. Paste brownish-grey, coarse, thick, and heavy.
Max. ext. diam. of rim 9ins. ; max. ext. diam. of body 11ins. ; height $11\frac{5}{8}$ ins.
Found $23\frac{1}{2}$ ft. E. of the c.p. of Dwelling-mound XLIX, 1894.
- P 135. Food-vessel, Type XII. Paste grey-coloured, with admixture of quartz grains. Ext. surface varies from light grey to black, vertical tool-marks on lower part of body.
Max. ext. diam. of rim $5\frac{7}{8}$ ins. ; max. ext. diam. of body $7\frac{1}{8}$ ins. ; height $6\frac{1}{8}$ ins.
Found deep in the peat outside the palisading, $18\frac{1}{2}$ ft. N.N.E. of the c.p. of Dwelling-mound LX, 1895.
- P 137. Small cooking-pot. Paste very coarse, thick, and heavy.
Max. ext. diam. of rim $5\frac{5}{8}$ ins. ; max. ext. diam. of body $6\frac{5}{8}$ ins. ; height 6ins.
Found $9\frac{3}{4}$ ft. N. of the c.p. of Dwelling-mound LIX, 1895.
- P 139. The greater part of a food-vessel. Type XI. Paste dark grey, coarse and heavy.
Max. ext. diam. of rim $6\frac{1}{2}$ ins. ; max. ext. diam. of body $7\frac{3}{4}$ ins. ; height $7\frac{3}{8}$ ins. ; average thickness of ware $\frac{7}{16}$ in.
Found in the substructure $16\frac{1}{2}$ ft. s.e. of the c.p. of Dwelling-mound LVII, 1896.

PLATE LXXIII.

- P 101. About two-thirds of an ornamented vessel. Type v.
Max. ext. diam. of rim $5\frac{11}{16}$ ins. ; max. ext. diam. of body $6\frac{1}{2}$ ins. ; max. ext. diam. of base $3\frac{1}{4}$ ins. ; height 6ins. ; average thickness of ware $\frac{3}{8}$ in.
Paste varies from buff to dark grey, spongy texture, light weight, clay fine, mixed with a few pieces of stone. Ext. surface varies from buff to black, pitted, uneven, ridged diagonally with tool-marks. Int. surface dark grey, fairly smooth but indented, no striæ. Rim ornamented by girth groove, lip rounded.
Ornamented with a band 2ins. in width bordered above and below by a single girth groove. The design consists of two interlacing flowing lines ; the oval spaces enclosed are occupied by cross-hatching and a central vertical bar containing a row of four or five stamped circles.
Found $16\frac{1}{2}$ ft. s.w. of the c.p. of Dwelling-mound XLIX, 1894.
- P 105. A large "ginger jar" shaped vessel ; base missing otherwise nearly complete. Type IX.
Max. ext. diam. of rim 5ins. ; max. ext. diam. of body $8\frac{1}{4}$ ins. ; max. ext. diam. of vessel near the base 6ins. ; height $8\frac{1}{8}$ ins., when perfect probably $8\frac{3}{8}$ ins. ; average thickness of ware $\frac{5}{16}$ in.
Paste light brownish-grey, light weight, with large admixture of white shelly stone. Ext. surface brownish-grey, flecked with white, much weathered in places, originally smooth and burnished ; no striæ or tool-marks. Int. surface dark grey flecked with white ; rather rough and indented ; no striæ. Rim short ($\frac{5}{8}$ in. in height), nearly vertical, lip rounded.
Shoulder and upper part of body ornamented with a broad band ; the design derived from the interlocking semicircles pattern consists of horn-shaped projections shaded obliquely ; each pair is separated by group of dot-and-circle pattern. The oval spaces enclosed by the opposing horns are occupied by similar dots-and-circles. The design is bordered above by six girth grooves ; the space between the third and fourth is filled with a row of deep circular indentations ; and below by four girth grooves with a similar row of indentations between the second and third.
Found $7\frac{1}{2}$ ft. N.N.W. of the c.p. of Dwelling-mound XLIX, 1894.

P 106. The greater part of an ornamented bowl of Type III.

Max. ext. diam. of rim $6\frac{1}{8}$ ins. ; max. ext. diam. of body $7\frac{3}{8}$ ins. ; max. ext. diam. of base $4\frac{1}{8}$ ins. ; height $4\frac{5}{8}$ ins. ; thickness of ware varies from $\frac{1}{8}$ to $\frac{3}{8}$ in.

Paste brownish-black, hard baked and strong, with large admixture of coarse sand. Ext. surface varies from brown to black, smooth, burnished ; horizontal tool-marks on body ; no striæ. Surface rough and weathered in places. Int. surface brownish-black, rough and gritty ; no striæ. Rim nearly straight, slightly everted, lip rounded ; ornamented with groove on ext. surface.

Shoulder and upper part of body ornamented with a band $1\frac{3}{8}$ ins. in width. The design consists of a scroll pattern embellished with stamped concentric circles, bordered above and below by two girth grooves. The design is incised with a blunt point by freehand drawing. Foot ornamented with one groove. Base ornamented with cruciform design, *see* Fig. 166.

Found 10 ft. s.s.w. of the c.p. of Dwelling-mound XLIX, 1894.

P 124. Part of the base and side of a zoned vessel, wheel-made, with a ringed foot. Thickness of ware varies from $\frac{1}{8}$ to $\frac{7}{16}$ in.

Paste lightish-grey, with large admixture of quartz sand. Ext. surface varies from dark grey to black ; smooth ; parallel striæ distinct. Int. surface dark brown, rather rough ; ridges and parallel striæ. The side of the vessel is divided by shallow burnished girth grooves ($\frac{1}{8}$ in. in width) into zones, alternately burnished and dull. The lowermost zone is burnished and $1\frac{1}{8}$ ins. in width. The second zone has a dull black surface $\frac{9}{16}$ in. in width. The third zone is burnished and $\frac{9}{16}$ in. in width. The fourth zone (incomplete) has a dull black surface.

The foot is ornamented with a burnished groove. The base is sunk, flat, and separated from the foot by a burnished groove $\frac{9}{16}$ in. in width.

Found $18\frac{1}{2}$ ft. s.e. of the c.p. of Dwelling-mound XLVIII, 1894.

P 128. Fragment of a large bowl, probably of Type VIII.

Max. ext. diam. of rim $5\frac{1}{4}$ ins. ; max. ext. diam. of body 9 ins. ; thickness of ware varies from $\frac{1}{4}$ to $\frac{1}{2}$ in.

Paste reddish-brown, coarse grained and friable ; contains numerous grains of quartz. Ext. surface where not weathered dark brown or black, smooth, and burnished ; no striæ. Int. surface dark brownish-grey, flecked with white round the rim, somewhat uneven and rough ; no striæ. Rim slightly curved and everted ; lip rounded and ornamented with shallow groove on ext. surface.

Shoulder ornamented with five shallow girth grooves, a band of chevron being introduced between the fourth and fifth. Body has bold globular outline, and is ornamented with a series of beautiful curves derived from the scroll design. The spaces are filled with a number of stamped circles containing from four to eight small circular indentations arranged in the form of rosettes.

Found $11\frac{1}{4}$ ft. s.e. of the c.p. of Dwelling-mound XLIX, 1894.

P 142. Fragment of a large globular bowl of Type VIII.

Max. ext. diam. of rim $6\frac{7}{8}$ ins. ; max. ext. diam. of body approximately 10 ins. ; thickness of ware varies from $\frac{1}{4}$ to $\frac{3}{8}$ in.

Paste light brownish-grey, hard baked ; contains quartz grains and small pieces of stone. Ext. surface dark grey, smooth, burnished in places. Int. surface dark grey, fairly smooth and even ; no striæ. Rim straight, nearly vertical ; lip flattened on upper surface and ornamented with shallow groove on ext. surface.

Shoulder ornamented with four girth grooves, and upper part of body with a somewhat rough design of reversed semicircles, shaded with oblique and vertical lines.

Found in the peat outside the palisading, $48\frac{1}{2}$ ft. s. of the c.p. of Dwelling-mound V, 1896.

P 149. Fragment of a small ornamented bowl of Type XVI.

Max. ext. diam. of rim $4\frac{9}{16}$ ins. ; max. ext. diam. of body $5\frac{7}{8}$ ins. ; max. ext. diam. of base $3\frac{5}{16}$ ins. ; approximate height $4\frac{3}{8}$ ins. ; thickness of ware varies from $\frac{5}{16}$ to $\frac{7}{16}$ in.

Paste dark grey nearly black, texture coarse and spongy, mixed with some vegetable substance. Ext. surface much weathered ; varies from grey to brownish-black, fairly smooth, burnished in places ; pitted with small holes ; no striæ. Int. surface black, fairly smooth but uneven ; pitted with numerous small holes. Rim everted, lip missing.

Shoulder and body ornamented with a series of five zones separated by two girth grooves. The

zones diminish in width from above downwards. The upper zone is occupied with a zigzag design in which the upper triangles are shaded with oblique cross-hatching, the lower with incised semicircles. The second zone was ornamented with incised semicircles many of which are missing owing to weathering. The third and fifth zones are shaded with oblique cross-hatching. The fourth appears to have had a plain burnished surface. The under-surface of the base is slightly hollowed.

Found in the peat outside the palisading, 24½ ft. w. of the c.p. of Dwelling-mound V, 1896.

PLATE LXXIV.

P 10. Fragment of a large hand-made ornamented pot of rough design.

Max. ext. diam. of rim 6½ ins. ; max. ext. diam. of body 9½ ins. ; height approximately 9½ ins. ; average thickness of ware ⅝ in.

Paste light grey, friable, texture fine with small admixture of white flaky stone. Ext. surface lightish grey ; scored vertically with tool-marks made during the process of burnishing. Int. surface brown, with remains of burnt food adhering ; uneven and indented with finger-marks ; no striæ.

Ornamented on shoulder and upper part of body with a chevron design of a rough and primitive character.

Found in the peat 27 ft. N.E. of the c.p. of Dwelling-mound XXIII, 1893.

P 49. The base of a vessel ornamented with reversed semicircular lines ; the space between the curves is shaded with oblique and horizontal lines. The paste is coarse grained and the design roughly drawn and incised.

Found during the excavation of Dwelling-mounds LXII—LXV, 1892.

P 74. Fragment of a roughly made pot ; probably of Type xv.

Max. ext. diam. of rim 6½ ins. ; average thickness of ware ¾ in.

Paste dark grey, strong, coarse grained and mixed with fragments of stone. Ext. and int. surfaces dark grey, rough, pitted with small holes.

Ornamented with a simple chevron pattern of three lines.

Found during the excavations of 1892, probably in Dwelling-mound LXII.

P 122. Fragment of a wide-mouthed vessel with slightly curved side. Type xv.

Max. ext. diam. of rim 6½ ins. ; max. ext. diam. of body 6½ ins. ; average thickness of ware ⅝ in.

Paste dark grey, hard baked and heavy, mixed with quantities of sand. Ext. surface brownish-black, smooth, burnished ; no striæ. Int. surface brownish-black, gritty and uneven ; vertical tool-marks. Lip rounded, smooth and burnished, ornamented with groove on ext. surface.

Upper part of body ornamented immediately below the rim with one girth groove from which hangs a festooned band shaded with oblique lines.

Found 20½ ft. N. of the c.p. of Dwelling-mound XLVIII, 1894.

P 127. A hollow base of unusual form, with vertical side rin. in depth, and flat under-surface.

Max. ext. diam. 4½ ins. ; average thickness of ware ¾ in.

Paste light grey, texture spongy, fragile and badly baked, mixed with quantities of angular fragments of whitish stone. Ext. surface lightish grey, pitted with small holes ; smooth, but considerably weathered in places. Int. surface grey, uneven ; no striæ ; partly covered with reddish-coloured film similar to that seen in stagnant ditches at the present day near the Lake-village.

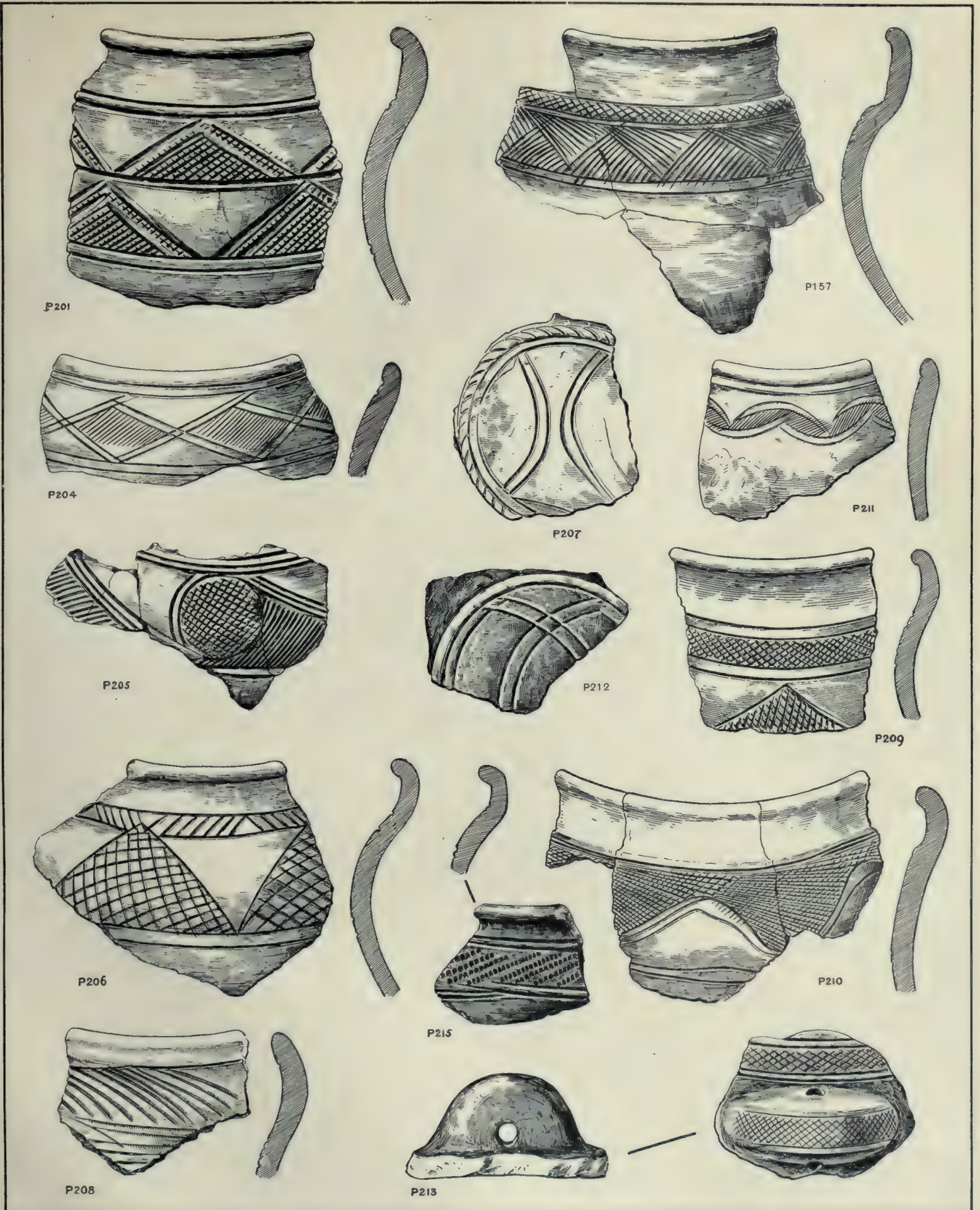
Ornamented with two narrow cordoned bands bordered by shallow grooves, carefully incised with a rope pattern ; the bands are separated by a slightly concave moulding.

Found 6 ft. S. of the c.p. of Dwelling-mound XLIX, 1894.

P 129. Fragment of a bowl of Type III.

Max. ext. diam. of rim 5½ ins. ; max. ext. diam. of body 7½ ins. ; height approximately 6 ins. ; average thickness of ware ⅝ in.

Paste dark grey, strong, mixed with quantities of small grit. Ext. surface dark grey, smooth, burnished ; horizontal tool-marks on rim. Int. surface dark grey, smooth ; no striæ. Rim vertical, lip rounded.



POTTERY FROM GLASTONBURY LAKE VILLAGE.
(About $\frac{1}{2}$ Natural Size).



POTTERY FROM GLASTONBURY LAKE VILLAGE.

(About $\frac{1}{2}$ Natural Size).

Shoulder and upper part of body ornamented with scroll design, filled in with concentric circles and rounded indentations ; the scroll is bordered above and below by two girth grooves.

Found 19½ft. s.s.w. of the c.p. of Dwelling-mound XLIX, 1894.

P 143. Part of a small roughly ornamented vessel.

Max. ext. diam. of rim 4½ins. ; max. ext. diam. of body 5½ins. ; max. ext. diam. of base 3ins. ; height 3½ins. ; average thickness of ware ⅞in.

Paste light grey, fragile and badly baked ; texture coarse, mixed with quantities of quartz and water-worn pieces of stone, the largest piece measuring ¾in. in diam. Ext. surface light grey, uneven and rough. Int. surface light grey, coated in places with a dark brown or black flaky layer of burnt food. Rim everted, lip rounded.

Body entirely covered with finely incised lines for the greater part vertical, and roughly arranged in zones. The zones are defined by incised grooves, and by lines of dots. The foot is roughly beaded. Base ornamented with lines of punctured dots and curved incised lines, the exact arrangement of which cannot be made out.

Found 49½ft. s. of the c.p. of Dwelling-mound V, 1896.

P 144. Part of an ornamented vessel of Type XVI.

Max. ext. diam. of rim 5½ins. ; max. ext. diam. of body 6½ins. ; height 4½ins. ; average thickness of ware ⅝in.

Paste dark grey, hard baked, mixed with a large quantity of fine grit and sand. Ext. surface dark brownish-grey, smooth, burnished ; horizontal tool-marks on rim ; no striæ on body. Int. surface light grey, fairly smooth, uneven in places. Rim everted, lip rounded.

Shoulder ornamented with a plain zigzag pattern drawn in double line ; bordered above and below by two girth grooves, shaded obliquely in opposite directions.

Found 43½ft. s. of the c.p. of Dwelling-mound V, 1896.

P 145. Fragment of an ornamented vessel of Type III.

Max. ext. diam. of rim 6¼ins. ; max. ext. diam. of body 7¾ins. ; height approximately 5½ins. ; average thickness of ware ⅞in.

Paste dark grey, strong, mixed with fine sand. Ext. surface dark grey ; horizontal tool-marks. Int. surface black, fairly smooth and even ; no striæ ; lower stages covered with flakes of dark sooty material, presumably charred food. Rim straight, vertical ; lip rounded and everted.

Shoulder and upper part of body ornamented with a band of saltire, barred, with lateral triangles shaded obliquely. Bordered above with five girth grooves, a row of concentric circles occupying the space between the third and fourth ; below by two girth grooves.

Found 42ft. s. of the c.p. of Dwelling-mound V, 1896.

P 146. Fragment of a vessel of Type VII.

Max. ext. diam. of rim 5¾ins. ; max. ext. diam. of body (approx.) 11¾ins. ; height (approx.) 11ins. ; average thickness of ware ¾in.

Paste varies from light grey to orange grey ; mixed with quantities of fine sand and grit. Ext. surface black, highly burnished, smooth ; horizontal tool-marks. Int. surface brownish-grey ; no striæ. Rim curved, contracted ; lip everted, rounded, ornamented with deep groove on inner surface and on the upper with cross-hatching.

Shoulder ornamented with cordon, bordered above by a single groove and shaded with cross-hatching. Body ornamented with band shaded with cross-hatching, bordered above and below by two girth grooves. Hanging from the lower set of grooves is a fringe of obliquely-set chevron, shaded with cross-hatching.

Found 53ft. s. of the c.p. of Dwelling-mound V, 1896.

P 249. Small fragment of pottery ornamented with a band of closely set indented lines placed diagonally. The pattern was made with a fine toothed implement, possibly a roulette.

Paste dark grey, badly baked and fragile. Average thickness of ware ⅞in.

Found in Dwelling-mound XXXVI.

P 302. Small fragment of ornamented pottery. Average thickness of ware ¼in.

Paste dark grey, strong, mixed with grains of calcite. Ext. surface lightish grey, covered with black veneer or polish, smooth; no striæ. Int. surface black, rough, uneven.

Ornamented with a circular depression and flowing lines; spaces shaded with oblique cross-hatching.

Found in Dwelling-mound XLIX.

P 313. Small fragment of pottery ornamented with rows of indentations and parallel grooves, and a circle enclosing four indentations. Paste light grey.

Found in Dwelling-mound XLVI.

PLATE LXXVII.

P 6. Complete hand-made pot of brownish-grey paste. Type xxiii.

Max. ext. diam. of rim $5\frac{1}{2}$ ins.; max. ext. diam. of body $6\frac{1}{2}$ ins.; height $5\frac{1}{2}$ ins.

Ornamented on rim with a narrow band of chevron, with points to the right, bordered above by one groove and below by two. The foot is ornamented with one groove.

Found in the peat $22\frac{1}{2}$ ft. E. of the c.p. of Dwelling-mound XLVI, 1893.

P 44. Unornamented vessel of reddish ware, flower-pot shape, paste coarse. Type xix.

Max. ext. diam. of rim $6\frac{1}{2}$ ins.; max. ext. diam. of body $6\frac{1}{2}$ ins.; height $6\frac{3}{8}$ ins.

Found during the excavation of Dwelling-mounds LXII—LXV, 1892.

P 53. Hand-made vessel, nearly complete. Type xvii.

Max. ext. diam. of rim $6\frac{1}{2}$ ins.; max. ext. diam. of body $7\frac{3}{8}$ ins.; height $6\frac{1}{4}$ ins.

Paste dark grey. Ext. surface black, smooth, and burnished.

Ornamented on inner surface of rim with one groove.

Found in the peat $17\frac{1}{2}$ ft. E. of the c.p. of Dwelling-mound XLVI, 1893 (6ft. 3ins. below the surface, near the pieces of loom frame-work).

P 100. Complete pot, of Type xxii.

Max. ext. diam. of rim $5\frac{3}{8}$ ins.; max. ext. diam. of body $6\frac{3}{8}$ ins.; height $3\frac{3}{8}$ ins.

Paste dark grey, with admixture of calcite. Ext. surface nearly black, burnished. Lip rounded, ornamented with groove on inner surface.

Ornamented below the rim with a cordon, and on the shoulder with a band shaded with cross-hatching, bordered above by one and below by two girth grooves.

Found in the peat outside the palisading, 15ft. E. of the c.p. of Dwelling-mound VIII, 1894.

P 117A. Small hand-made, unornamented vessel. Paste light brownish-grey, thick and heavy.

Max. ext. diam. of rim $4\frac{7}{8}$ ins.; max. ext. diam. of body $5\frac{7}{8}$ ins.; height $4\frac{1}{16}$ ins.

Found 5ft. E.S.E. of the c.p. of Dwelling-mound II, 1894.

P 136. Part of a coarse cooking-vessel of dark grey paste.

Max. ext. diam. of rim $5\frac{3}{8}$ ins.; max. ext. diam. of body $6\frac{3}{8}$ ins.; height $5\frac{3}{8}$ ins.

Found 16ft. N. of the c.p. of Dwelling-mound LIX, 1895.

P 138. About two-thirds of a small pot; paste dark grey. Type xxi.

Max. ext. diam. of rim 6ins.; height $4\frac{5}{8}$ ins.

Ext. surface nearly black, smooth, burnished.

Ornamented immediately below the rim with a double row of shallow oval-shaped indentations.

Base perforated with five small holes, averaging $\frac{3}{16}$ in. in diam.

Found in the foundation under the clay, 5ft. S.W. of the c.p. of Dwelling-mound LIX, 1895.

P 141. Cooking-pot; paste dark grey, with large admixture of calcite. Type xii.

Max. ext. diam. of rim $5\frac{7}{8}$ ins.; max. ext. diam. of body $6\frac{3}{8}$ ins.; height 6ins.

Found $16\frac{1}{2}$ ft. S. of the c. p. of Dwelling-mound LVI, 1896.

P 147. Cooking-pot; paste brownish-grey, thick, coarse, and heavy.

Max. ext. diam. of rim $5\frac{7}{8}$ ins.; max. ext. diam. of body $6\frac{1}{4}$ ins.; height $5\frac{1}{4}$ ins.

Found $43\frac{3}{4}$ ft. S. of the c.p. of Dwelling-mound V, 1896.

P 172. Shallow dish of buff-coloured paste. Type x.

Max. ext. diam. of rim $9\frac{1}{4}$ ins. ; max. ext. diam. of base $3\frac{3}{8}$ ins. ; height 3 ins.

Found 8 ft. w. of the c.p. of Dwelling-mound LXX, 1905 (on a level with the ninth hearth).

P 173. Roughly-made vessel ; paste dark grey. Type III.

Ext. surface burnished in places where not weathered.

Max. ext. diam. of rim $5\frac{3}{4}$ ins. ; max. ext. diam. of body $6\frac{1}{4}$ ins. ; height 5 ins.

Upper part of body ornamented with a band of chevron design, the upper triangles being shaded with cross-hatching. The band is bordered above and below by two girth grooves. The foot is ornamented with two grooves. The lower third of the body is perforated with three circular holes arranged triangularly.

Found on the second floor of Dwelling-mound LXVII, 9 ft. N.E. of the c.p., 1906.

P 176. Roughly-made pot ; paste dark grey, texture coarse.

Max. ext. diam. of rim $5\frac{3}{8}$ ins. ; max. ext. diam. of body $6\frac{3}{8}$ ins. ; height $5\frac{1}{8}$ ins.

Base perforated with one irregularly shaped circular hole, placed eccentrically, and measuring $\frac{5}{8}$ in. in diam.

Found $19\frac{1}{2}$ ft. S.S.E. of the c.p. of Dwelling-mound LXVII, 1906.

PLATE LXXVIII.

P 154. Ornamented bowl, of Type III.

Max. ext. diam. of rim $5\frac{7}{8}$ ins. ; max. ext. diam. of body 7 ins. ; max. ext. diam. of base 4 ins. ; height $4\frac{5}{8}$ ins. ; average thickness of ware $\frac{5}{16}$ in.

Paste dark brownish-grey, hard baked, mixed with quartz grains. Ext. surface dark brownish-grey, black in places, smooth and burnished ; tool-marks about rim and body ; no striæ. Int. surface varies from brown to black, fairly smooth, indented, tool-marks on rim. Rim slightly concave, lip round and everted ; ornamented with groove on inner surface.

Shoulder and upper half of body ornamented with a band of lozenge pattern ; each lozenge is divided into four triangular spaces, which are alternately shaded and plain. The design is bordered above and below with three girth grooves shaded with oblique lines. Foot ornamented with two grooves. Base ornamented with two reversed and overlapping semicircles, enclosed by a circular groove parallel with the margin. The central and two triangular spaces are shaded obliquely, similar to P 15A, Fig. 166 ; and P 199, Plate LXXIX.

Found 13 ft. N.W. of the c.p. of Dwelling-mound IX, 4 ft. 6 ins. below the surface, level with the fifth floor, 1896.

P 156. About two-thirds of an ornamented pot. Type XVI.

Max. ext. diam. of rim $5\frac{3}{4}$ ins. ; max. ext. diam. of body $6\frac{1}{4}$ ins. ; max. ext. diam. of base $4\frac{5}{8}$ ins. ; height $4\frac{1}{4}$ ins. ; average thickness of ware $\frac{5}{16}$ in.

Paste dark brownish-grey, hard baked and strong, with admixture of quartz grains. Ext. surface dark brownish-grey, smooth but indented ; tool-marks, and burnished in places. Light brick-red on one side where it has had secondary firing. Int. surface varies from light red to black, fairly smooth, indented ; no striæ. Rim short, lip rounded, slightly everted.

Upper half of body ornamented with a broad band of interlocking semicircles, bordered above and below with two girth grooves. The ground is shaded with cross-hatching. Foot ornamented with one groove. Base ornamented with four unequal semicircles drawn in double line with a blunt point, with convexities towards the centre. The semicircles are enclosed by a marginal groove.

Found on the third floor, 8 ft. S.W. of the c.p. of Dwelling-mound IV, 1896.

A vessel of similar shape, 7 ins. in diam., was found at Elm Grove, Brighton.

P 158. Pot cover, the only example found at Glastonbury. Paste light red, coarse grained and heavy ; clay mixed with quantities of small pieces of stone.

Max. ext. diam. $4\frac{1}{2}$ ins. ; height $2\frac{3}{8}$ ins. ; depth of projecting ridge $\frac{3}{8}$ in. ; max. diam. of same $3\frac{1}{4}$ ins. ; max. diam. of knob $1\frac{3}{4}$ ins.

Found amongst the brushwood in the foundation, 16 ft. S.W. of the c.p. of Dwelling-mound IV, 1896.

Ornamented covers of similar shape have been found at the Meare Lake-village.

P 183. An ornamented vessel of "lyre"-shaped outline.

Max. ext. diam. of rim 5ins. ; max. ext. diam. of body 6½ins. ; thickness of ware varies from ¼ to ⅝in.

Paste brownish-black, fragile, spongy, and pitted with minute holes ; clay mixed with small quantity of fine sand. Ext. surface brownish-black, smooth, burnished ; pitted with minute holes and covered with fine cracks, *i.e.* "crazed." Int. surface brownish-black, smooth, almost polished in places ; tool-marks on rim ; no striæ. Rim everted, lip thick and rounded.

Upper half of body ornamented with a series of overlapping semicircles of ribbon-form, shaded with small elongated indentations. The design is bordered below by a similar band of ribbon ornament.

Found in Mound XLIV.

P 184. Ornamented vessel of Type IV.

Max. ext. diam. of rim 5½ins. ; max. ext. diam. of body 6¾ins. ; max. ext. diam. of base 3¾ins. ; height 6ins. ; thickness of ware varies from ¼ to ⅞in.

Paste dark brownish-grey, hard baked ; mixed with grains of quartz and small pieces of stone. Ext. surface varies from brown to black, smooth ; burnished in places where not weathered ; horizontal tool-marks, but no striæ. Int. surface varies from dark brown to black, rough and gritty to the touch ; uneven ; no striæ. Lip rounded.

Shoulder ornamented with a band of festoons, bordered above and below by two girth grooves. The ground below the semicircles is shaded with oblique incisions. In one place where the space did not permit of a festoon of the same size as the rest, a reversed semicircle was introduced to fill the space. The same arrangement is seen in P 260, Plate LXXXV. The semicircles were produced by free-hand drawing and not with compasses ; the double lines which vary in distance apart at different stages of the circle, are not true segments of circles, and overlap at the centre.

Found in Dwelling-mound XXXV.

A fragment of pottery having a similar design to the above was found by Miss D. Grosett Collins at Cannington Park Camp, 1906 (*Proc. Som. Arch. Soc.*, LII, i, 68).

P 185. A roughly ornamented bowl of Type III.

Max. ext. diam. of rim 6ins. ; max. ext. diam. of body 6½ins. ; thickness of ware varies from ¼ to ⅝in.

Paste dark grey, hard baked ; clay mixed with grains of quartz and calcite. Ext. surface varies from light grey to black, smooth, probably burnished. Int. surface, nearly black, smooth, flecked in places with white spots (calcite) ; lower part of body covered with flakes of charred food. Rim straight, lip rounded and everted.

Shoulder and body ornamented with the interlocking semicircle design, bordered below by a girth groove. The ground is shaded with coarse, irregular vertical grooves drawn with a blunt point.

Found in Dwelling-mound XXI, 1893.

P 186. Part of a globular-shaped bowl.

Max. ext. diam. of rim 4¾ins. ; max. ext. diam. of body 6½ins. ; approx. height 5½ins. ; thickness of ware varies from ¼ to ⅝in.

Paste dark grey, friable, with large admixture of quartz grains and sand. Ext. surface varies from buff to dark grey, fairly smooth but undulating ; pitted in places. Int. surface light grey, gritty, pitted ; no striæ. Lip rounded.

Body ornamented with one broad waved groove.

Found in Dwelling-mound XXI, 1893.

P 187. Part of the side and base of a small coarse thick pot.

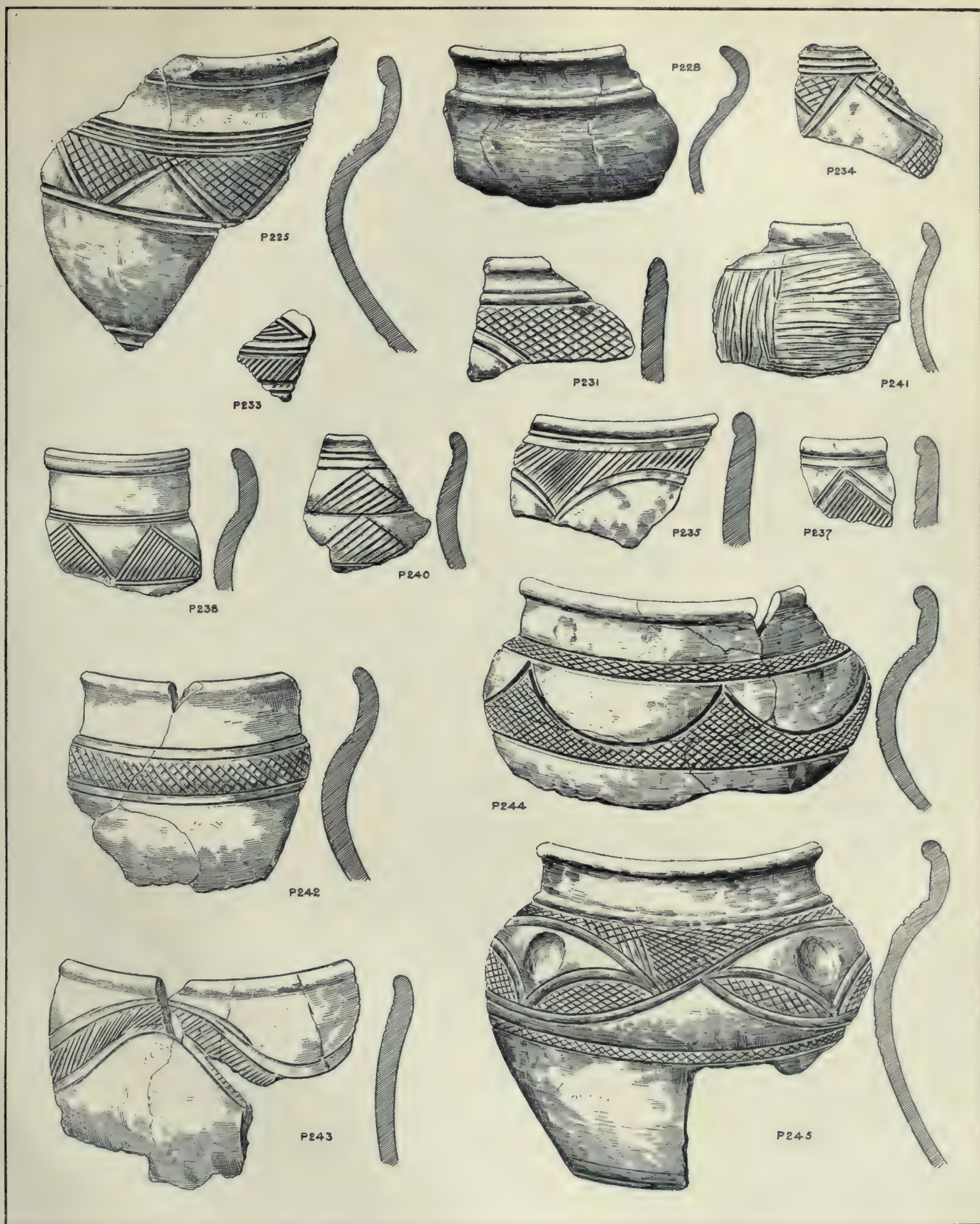
Average thickness of side ⅞in., of base ¾in.

Paste dark grey, friable, coarse grained and badly baked. Ext. surface brown, rough and uneven. Int. surface dark brownish-grey, rough and indented ; covered with surface cracks.

Body ornamented with sharply incised horizontal and vertical lines, the former dividing the vessel into zones, the latter forming irregular parallelograms.

Found in Dwelling-mound LXVII.

A second example with this design was found in Dwelling-mound LXXII, 1905.



POTTERY FROM GLASTONBURY LAKE VILLAGE.
(About $\frac{1}{2}$ Natural Size).

PLATE LXXIX.

P 57. Fragment of the rim and side of a globular-shaped bowl. Type I.

Max. ext. diam. of rim $6\frac{1}{4}$ ins.; max. ext. diam. of body $7\frac{5}{8}$ ins.; height approximately $4\frac{7}{8}$ ins.; average thickness of ware $\frac{5}{16}$ in.

Paste dark brownish-grey, spongy, light weight, with small admixture of stone. Ext. surface light brownish-grey, smooth, much pitted; shows in some places a white veneered burnished surface. Int. surface brownish-black, pitted, rough and uneven. Rim straight, lip thick, rounded, everted; ornamented with two grooves on ext. surface.

Shoulder ornamented with a single line of chevron, bordered above by a band of deeply incised cross-hatching between two girth grooves, and below by a single girth groove. Body immediately above the foot ornamented with two grooves.

Found during the excavations of 1892, Dwelling-mounds LXII—LXV.

P 61. Lug of semicircular shape belonging to a coarse thick pot.

Paste dark grey, coarse texture, contains grit and pieces of stone up to $\frac{3}{8}$ in. in diam. Ext. surface light brown. Hole of oval shape, the max. vertical and horizontal diams. being $\frac{3}{4}$ and $\frac{7}{16}$ in. respectively. Transverse section through centre of lug measures 1in. in width by $\frac{5}{8}$ in. in thickness.

Found 14 $\frac{1}{2}$ ft. N.W. of the c.p. of Dwelling-mound LXIV, 1892.

P III. Part of a small vessel of Type XIV.

Max. ext. diam. of rim $4\frac{1}{4}$ ins.; max. ext. diam. of body $5\frac{3}{8}$ ins.; max. diam. of base $3\frac{1}{8}$ ins.; height $3\frac{7}{8}$ ins.; average thickness of ware $\frac{1}{4}$ in.

Paste light grey, friable, mixed with quantity of sand. Ext. surface black, smooth and burnished. Int. surface dark grey, rough and gritty. Rim ornamented with two grooves; lip rounded.

Body ornamented with festoons of small semicircles, shaded with finely incised cross-hatching. Foot ornamented with two grooves. Base ornamented with semicircular lines arranged in the form of reversed crescents, enclosed in a circle (P III, Fig. 166).

Found 18ft. E.S.E. of the c.p. of Dwelling-mound XLIX, 1894.

P 181. Lug of semicircular shape, projecting $1\frac{3}{8}$ ins. beyond the surface of vessel. Paste brown and of coarse texture.

Hole measurements, vertical diam. $\frac{3}{8}$ in., transverse diam. $\frac{1}{2}$ in. Transverse section of lug, circular. Ext. surface of vessel slightly countersunk, and there is a corresponding convexity on the inner surface.

Found in Dwelling-mound XLIV.

P 182. Lug belonging to a thin, hard baked vessel; average thickness of ware $\frac{1}{4}$ in. Paste dark grey, nearly black, with large admixture of sand.

Lug projects $\frac{3}{4}$ in. above surface of vessel. Hole nearly circular, diam $\frac{1}{2}$ in. Cross-section through centre of lug measures $\frac{5}{8}$ and $\frac{3}{4}$ in. in width and thickness respectively. The hole is countersunk, and there is a corresponding bulge on the inner surface.

Found in Dwelling-mound V.

P 193. Fragment of the upper part of a globular bowl. Type III.

Max. ext. diam. of rim $5\frac{5}{16}$ ins.; max. ext. diam. of body $6\frac{1}{16}$ ins.; thickness of ware varies from $\frac{5}{16}$ to $\frac{1}{2}$ in.

Paste dark brownish-grey, hard baked and heavy; texture fine, with large admixture of sand. Ext. surface dark brownish-grey, fairly smooth. Int. surface dark grey (nearly black), fairly even but gritty. Rim vertical, lip rounded, ornamented with one groove on ext. surface.

Shoulder ornamented with a deeply incised band of nested chevron, placed sideways with points to the left, bordered above and below by two girth grooves.

Found in Dwelling-mound XLIX.

P 194. Small fragment of the upper part of a globular bowl. Type III.

Max. ext. diam. of rim $5\frac{1}{4}$ ins.; max. ext. diam. of body $6\frac{1}{2}$ ins.; average thickness of ware $\frac{5}{16}$ in.

Paste varies from buff to light red; hard baked, with large admixture of fine sand. Fragment has evidently undergone secondary firing in an open fire. Ext. surface varies from buff to light

red ; smooth, with many superficial cracks. Int. surface buff ; rough and uneven. Rim vertical, lip rounded, ornamented on outer surface with chevron pattern placed sideways with points to the right, and a single groove on inner surface.

Shoulder ornamented with narrow band of cross-hatching bordered on either side by a single groove. Body ornamented with a curvilinear design and circular depressions, the ground being divided into a number of irregular spaces by deeply incised parallel lines, drawn in various directions.

Found in Dwelling-mound XLIX.

P 196. Part of the base and side of an ornamented vessel.

Max. ext. diam. of base $4\frac{3}{8}$ ins. ; average thickness of ware $\frac{5}{16}$ in.

Paste dark grey ; texture fairly fine with large admixture of quartz grains. Ext. surface varies from light to dark grey ; fairly smooth ; no striæ. Int. surface dark brownish-grey ; gritty and indented ; no striæ.

Body ornamented with deeply incised pattern, but there is not enough to show the scheme of the design. Foot ornamented with two grooves enclosing a space shaded vertically. Base ornamented with two concentric grooves.

The vessel was evidently built up, as the fractured edge was rounded.

Found in Dwelling-mound XXXVIII.

P 198. Small fragment of an ornamented bowl. Type III.

Max. ext. diam. of rim 5 ins. ; max. ext. diam. of body $5\frac{7}{8}$ ins. ; thickness of ware varies from $\frac{1}{4}$ to $\frac{5}{16}$ in.

Paste light grey, texture coarse, containing quartz grains and quantities of pieces of white shelly stone. Ext. surface varies from grey to black ; fairly smooth ; no striæ. Int. surface light brownish-grey, rough and uneven, no striæ. Rim everted, concave ; with horizontal tool-marks ; lip rounded.

Shoulder ornamented with a narrow band of cross-hatching, bordered above by a rough cordon and below by two grooves. Body ornamented with an irregular chevron design, shaded with cross-hatching.

Found in Dwelling-mound XLIX.

PLATE LXXX.

P 188. The greater part of an ornamented bowl.

Max. ext. diam. of rim (approximately) $6\frac{1}{4}$ ins. ; max. ext. diam. of body $7\frac{1}{2}$ ins. ; max. ext. diam. of base $4\frac{3}{8}$ ins. ; approx. height $5\frac{1}{4}$ ins. ; thickness of ware varies from $\frac{1}{4}$ to $\frac{3}{8}$ in.

Paste dark brownish-grey, with large admixture of grains of white stone (largest fragment measuring $\frac{5}{16}$ in. in length). Ext. surface black, fairly smooth, pitted, burnished ; horizontal tool-marks ; no striæ. Int. surface brownish-black ; fairly smooth, pitted and indented ; no striæ. Rim everted, lip incomplete.

Shoulder ornamented with a narrow band of nested chevron with points to the left, bordered above and below by two grooves. Upper part of body ornamented with hanging triangles shaded with oblique lines. Lower part of body ornamented with two interlaced waved bands, one composed of three parallel grooves ; the other of two grooves with an intervening space shaded with cross-hatching. The oval areas made by the crossing of the bands are alternately shaded obliquely and plain. The base was perforated with four holes, made when the paste was dry or after baking.

Found in Dwelling-mound LXVII.

P 189. Fragment of a vessel of Type XVI.

Max. ext. diam. of rim $5\frac{1}{4}$ ins. ; max. ext. diam. of body $6\frac{1}{4}$ ins. ; max. ext. diam. of base $4\frac{3}{8}$ ins. ; height $4\frac{1}{4}$ ins. ; thickness of ware varies from $\frac{3}{16}$ to $\frac{5}{16}$ in.

Paste dark grey, spongy and of light weight ; with small admixture of quartz grains. Ext. surface nearly black ; smooth, burnished, pitted with small holes. Int. surface brownish-black ; smooth in places, gritty in others, pitted ; horizontal tool-marks on rim ; no striæ. Rim everted, lip rounded.

Shoulder ornamented with cordon. Upper half of body ornamented with a band of curvilinear design $1\frac{1}{2}$ ins. in width, bordered below by two girth grooves. Oval-shaped spaces and the ground above the curved lines shaded with cross-hatching. Lower half of body perforated with a circular hole $\frac{3}{8}$ in. in diam.

Found in Dwelling-mound XVIII,

P 190. The base and parts of the side of a zoned urn, the zones being separated by cordons bordered by shallow grooves.

Max. ext. diam. of base $3\frac{7}{8}$ ins. ; thickness of ware varies from $\frac{1}{4}$ to $\frac{3}{8}$ in.

Paste brownish-black, friable, texture fine, with small admixture of sand. Ext. surface black, smooth, polished ; pitted with small holes. Int. surface dark grey, nearly black, smooth ; pitted with small holes ; coated in places with orange-coloured stains ; no striæ.

The first cordon is placed 2ins. above the foot, and the second at $3\frac{1}{8}$ ins. ; both cordons are $\frac{1}{8}$ in. in width, and with the bordering grooves $\frac{5}{16}$ in. in width. The foot is a well moulded ring, and the base is hollow with an omphaloid depression.

Found in Dwelling-mound XXI.

P 200. About three-quarters of a small pot of Type xv, found in seventeen fragments.

Max. ext. diam. of rim $6\frac{1}{4}$ ins. ; max. ext. diam. of body $6\frac{1}{2}$ ins. ; max. ext. diam. of base $5\frac{1}{8}$ ins. ; height $3\frac{1}{16}$ ins. ; average thickness of ware $\frac{5}{16}$ in.

Paste dark grey tinged with orange in places ; with large admixture of small grit. Ext. surface dark grey, burnished ; parallel tool-marks in lower part ; no striæ. Int. surface dark grey, rough and gritty. Rim everted, lip rounded.

The vessel is ornamented below the rim with three horizontal grooves, the space between the two uppermost being shaded obliquely. From the lower groove hang large angular festooned bands inset with two semicircular bands. The bands are shaded with finely incised cross-hatching. A feature of more than passing interest may be observed in the two fine semicircular lines partly obliterated by the pattern. These lines were evidently the beginnings of a design, but the draughtsman changed his mind in favour of the hanging festoons.

Found in Dwelling-mound XVIII.

P 202. Fragment of a large globular bowl of Type i.

Max. ext. diam. of rim 7ins. ; max. ext. diam. of body $9\frac{3}{8}$ ins. ; average thickness of ware $\frac{3}{8}$ in.

Paste dark grey, mixed with grains of pounded quartz. Ext. surface, rim and upper part of body black ; lower part of body light grey ; fairly smooth, burnished ; no striæ. Int. surface mottled grey, rough and uneven ; no striæ. Rim straight, lip everted, rounded ; grooved on outer and inner surfaces.

Shoulder ornamented with narrow band of cross-hatching bordered above with two girth grooves. Body ornamented with a broad band of design consisting of two parallel flowing lines ; the space above them is occupied by cross-hatching, and below by a circular depression having a raised dot in the centre. The band is bordered above by three and below by two girth grooves.

Found in the peat outside the palisading s. of Dwelling-mound XXX.

P 263. Fragment of a small ornamented bowl. Average thickness of ware $\frac{5}{16}$ in.

Paste light grey, friable ; mixed with quantities of quartz grains. Ext. surface black, smooth ; with tool-marks, but no striæ ; coated with a black wash and highly polished. Int. surface varies from brown to grey, fairly smooth.

Body ornamented with a festooned pattern bordered below by four girth grooves and above by five girth grooves ; the space between the third and fourth being wider than the others is occupied by a horizontal row of dots. The space above the curved lines is shaded with cross-hatching, and at the meeting point of the festoons there is a vertical bar with central line of dots placed vertically.

Found at a depth of 5ft. 4ins. in the peat outside the palisading, n. of Dwelling-mound XLVIII.

P 264. Small fragment of a globular bowl.

Max. ext. diam. of rim $5\frac{1}{8}$ ins. ; max. ext. diam. of body $6\frac{1}{2}$ ins. ; average thickness of ware $\frac{1}{4}$ in.

Paste dark grey, hard baked, with large admixture of calcite (largest piece $\frac{1}{8}$ in. in diam.). Ext. surface brownish-grey flecked with white grains ; smooth, burnished. Int. surface dark grey, fairly smooth ; flecked with white ; no parallel striæ. Rim straight, slightly everted ; lip rounded ; inner surface grooved, and with striæ.

Ornamented with cordon on shoulder. Body ornamented with festoons of triple lines ; the space above the curved lines is occupied by cross-hatching, and below by a circular depression. The pattern is bordered below by two girth grooves.

Found in Dwelling-mound IV.

P 265. Small fragment of a bowl.

Max. ext. diam. of rim $5\frac{3}{8}$ ins. ; max. ext. diam. of body $6\frac{7}{8}$ ins. ; average thickness of ware $\frac{3}{8}$ in.

Paste lightish grey, mixed with grains of quartz. Ext. surface light grey ; much weathered in places ; no striæ. Int. surface, rough and uneven, much weathered. Rim curved and everted, lip rounded. Body ornamented with two bands of chevrons, in which the lower triangles are shaded with oblique lines. The bands of ornament are bordered with two shallow grooves enclosing a row of dots.

The Dwelling-mound is unrecorded.

P 275. Fragment of one of the few examples of wheel-made vessels. Type xx.

Max. ext. diam. of rim $6\frac{3}{8}$ ins. ; max. ext. diam. of body $7\frac{1}{8}$ ins. ; max. ext. diam. of base $2\frac{3}{4}$ ins. ; approx. height $4\frac{1}{8}$ ins. ; average thickness of ware $\frac{1}{4}$ in.

Paste dark grey, strong, texture fine, with large admixture of fine sand. Ext. surface dark brownish-grey (nearly black) ; smooth, polished, and highly finished ; parallel horizontal striæ. Int. surface dark grey, smooth ; parallel horizontal striæ on rim. Rim deep, curved, everted, with overhanging rounded lip.

Ornamented with a cordon at the junction of rim and shoulder, and another round the body. Base incomplete, probably hollow and raised on ringed foot.

Found in Dwelling-mound XXX.

PLATE LXXXI.

P 201. Fragment of a large bowl, with rim similar to Type vii.

Max. ext. diam. of rim $7\frac{3}{8}$ ins. ; max. ext. diam. of body $11\frac{3}{8}$ ins. ; approximate height $9\frac{1}{8}$ ins. ; average thickness of ware $\frac{3}{8}$ in.

Paste brown, friable ; texture fairly fine ; mixed with small pieces of stone, some of which were burnt red, others grey. Ext. surface black, burnished, with horizontal tool-marks. Int. surface black, flakey ; marked with parallel vertical ridges made by fingers or pottery tool. Rim—ext. surface straight, int. curved and marked with horizontal striæ, lip rounded.

Junction between rim and shoulder ornamented with cordon. Body ornamented with two rows of shaded chevron ; the pattern is deeply incised and bordered below by two girth grooves.

Found in Dwelling-mound V.

P 204. Small fragment of a vessel of Type iv.

Max. ext. diam. of rim $5\frac{1}{8}$ ins. ; max. ext. diam. of body (approx.) 7ins. ; average thickness of ware $\frac{3}{8}$ in.

Paste light red, strong and hard baked ; with large admixture of grit (largest fragment $\frac{1}{8}$ in. in diam.). Ext. surface light red, smooth ; no striæ. Int. surface light red, rough ; marked with depressions and ridges made by fingers. Lip rounded.

Ornamented below the rim with a band of lozenge-shaped spaces shaded with oblique lines ; bordered above and below by two girth grooves.

Found in Dwelling-mound IV.

P 205. Fragment of a vessel ornamented with a design, the lines of which were unusually deep and distinct. Ware averaged $\frac{5}{16}$ in. in thickness.

Paste reddish-brown, very friable ; mixed with small stones and grit. Ext. surface black, highly burnished. Int. surface dark grey and rough.

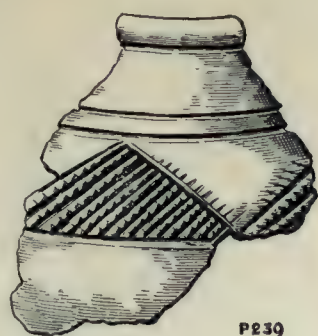
Upper part of body ornamented with a waved design, shaded obliquely, with an inset circle shaded with deeply incised cross-hatching ; the pattern is bordered above by three deep grooves and below by two.

Found during the excavations of 1893 ; Dwelling-mound uncertain.

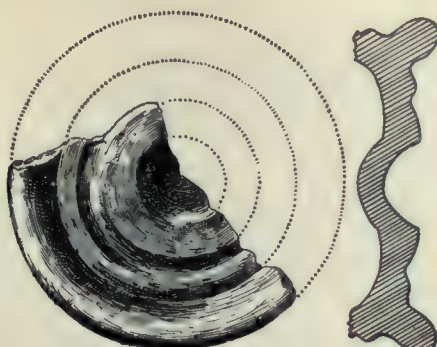
P 206. Large fragment of a roughly ornamented vessel.

Max. ext. diam. of rim 5ins. ; max. ext. diam. of body $6\frac{1}{8}$ ins. ; height (approx.) $5\frac{1}{4}$ ins. ; average thickness of ware $\frac{5}{16}$ in.

Paste yellowish-grey, strong ; with large admixture of white shelly stone. Ext. surface dark grey,



P239



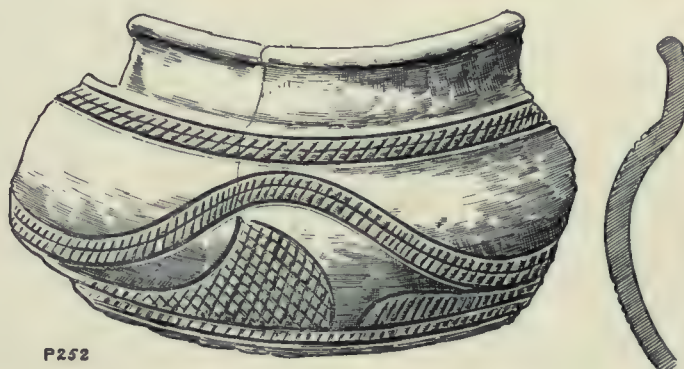
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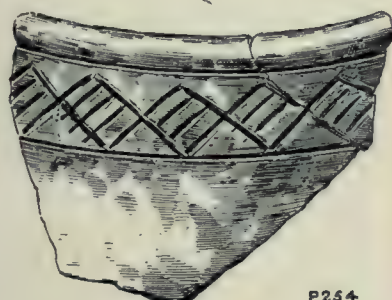
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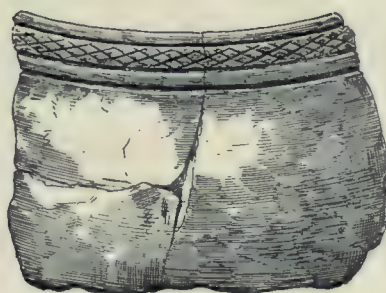
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P252



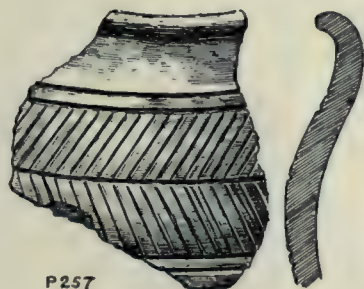
P254



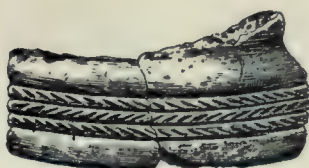
P255



P256



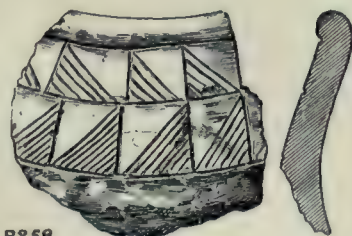
P257



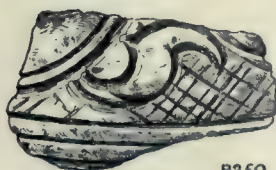
P247



P253



P258



P250

POTTERY FROM GLASTONBURY LAKE VILLAGE.

(About $\frac{1}{2}$ Natural Size).

burnished; tool-marked; no striæ. Int. surface yellowish-grey, rough and uneven. Rim is badly moulded and uneven; lip everted and rounded.

Shoulder ornamented with narrow band shaded with oblique lines, drawn in sets of six and seven in opposite directions. Body ornamented with a roughly-drawn chevron pattern; the triangles are shaded with coarse cross-hatching and bordered below by two girth grooves.

Found in Dwelling-mound V.

P 207. Part of the base of a coarse thick vessel. Average thickness of ware $\frac{1}{2}$ in.

Paste orange-grey, with large admixture of white shelly stone. Ornamented with roughly-drawn reversed semicircles, and a cable pattern round the margin. (See Fig. 166).

Found in Dwelling-mound XVIII.

P 208. Fragment of the rim of a large vessel. Max. ext. diam. of rim 9 ins.

Paste dark grey, with large admixture of grit and small stones. Ext. surface nearly black and burnished. Both ext. and int. surfaces exhibited horizontal striæ.

Rim and body ornamented with ribbed lines, probably produced with a roulette.

Found in Dwelling-mound V.

P 209. Fragment of a bowl.

Max. ext. diam. of rim $5\frac{1}{4}$ ins.; max. ext. diam. of body $6\frac{1}{4}$ ins.; height (approx.) $5\frac{1}{2}$ ins.; average thickness of ware $\frac{5}{16}$ in.

Paste dark grey and strong, with admixture of grit. Ext. and int. surfaces dark grey, smooth; horizontal tool-marks on rim; no striæ.

Ornamented on shoulder with band of cross-hatching; bordered, above and below, by two girth grooves. Body ornamented with chevron pattern, the triangles shaded with cross-hatching.

Found in Dwelling-mound XVIII.

P 210. Fragment of the upper part of a vessel.

Max. ext. diam. of rim $6\frac{1}{4}$ ins.; max. ext. diam. of body $6\frac{1}{4}$ ins.; height (approx.) $6\frac{1}{4}$ ins.; thickness of ware varies from $\frac{1}{4}$ to $\frac{3}{8}$ in.

Paste dark grey, strong; texture coarse, with admixture of grit and water-worn stones (some of which measured $\frac{5}{16}$ in. in diam.). Ext. surface nearly black; tool-marks on rim. Int. surface dark grey, rough; stones projecting above the level of surface; no striæ. Rim rounded and everted. Shoulder somewhat angular.

Body ornamented with a roughly-drawn waved pattern; the space above the waved lines being shaded with cross-hatching.

Found in Dwelling-mound XVIII.

P 211. Small fragment of a vessel of similar shape to P 184, Plate LXXVIII.

Max. ext. diam. of rim $5\frac{7}{8}$ ins.; max. ext. diam. of body $6\frac{1}{8}$ ins.; average thickness of ware $\frac{5}{16}$ in.

Paste dark grey, strong, with admixture of very fine grit. Ext. surface black, smooth and burnished; no striæ. Int. surface dark grey, uneven; no striæ. Rim ornamented with groove, lip rounded.

Upper part of body ornamented with interlocking semicircles, the spaces between the curves are shaded with finely incised oblique lines.

Found in Dwelling-mound II.

P 212. Fragment of a base; max. diam. $3\frac{5}{8}$ ins.; foot rounded $\frac{3}{16}$ in. in depth.

Paste grey, texture fine, with small admixture of grit. Under-surface ornamented with reversed intersecting semicircles. (See Fig. 166).

Found in Dwelling-mound XVIII.

P 213. Semicircular lug or ear, disc-shaped, bi-convex in section, with long diameter placed horizontally, and perforated vertically with a circular hole $\frac{1}{4}$ in. in diam.

Paste brownish-grey colour, with large admixture of fine sand. Ext. surface dark grey or black, smooth and burnished. Int. surface brownish-grey, rough and gritty.

Ornamented with bands of finely incised cross-hatching.

Found in Dwelling-mound V.

P 215. Fragment of a small bowl.

Max. ext. diam. of rim $4\frac{3}{4}$ ins. ; max. ext. diam. of body 6ins. ; height (approx.) 4ins. ; average thickness of ware $\frac{5}{16}$ in.

Paste light grey, with admixture of grit and stone (diam. of largest piece $\frac{1}{8}$ in.). Ext. surface black, burnished ; horizontal tool-marks on body, vertical marks on rim. Int. surface dark grey, smooth ; no striæ. Rim straight, lip rounded and everted.

Shoulder ornamented with a band of oblique lines, made with a roulette or notched tool ; the pattern is bordered above and below by two deep but roughly-drawn incised grooves.

Found in Dwelling-mound XVIII.

P 157. About one-third of an ornamented bowl in several pieces, the largest fragment only being illustrated.

Max. ext. diam. of rim $5\frac{5}{8}$ ins. ; max. ext. diam. of body $6\frac{7}{8}$ ins. ; approximate height 5ins. ; average thickness of ware $\frac{5}{16}$ in.

Paste dark grey, strong, mixed with quantities of quartz grains. Ext. surface black, burnished, fairly smooth ; horizontal tool-marks round the rim and body. Int. surface black, fairly smooth, but gritty where weathered ; no striæ. Rim slightly tapering, lip rounded and everted.

Shoulder ornamented with a narrow raised band of cross-hatching. Upper part of body ornamented with chevron design, the triangles being shaded with oblique incisions drawn in opposite directions, bordered below by two girth grooves.

Found in Dwelling-mound V.

PLATE LXXXII.

P 214. Fragment of an ornamented bowl.

Max. ext. diam. of rim 5ins. ; max. ext. diam. of body 7ins. ; average thickness of ware $\frac{5}{16}$ in.

Paste dark brownish-grey, hard baked, with admixture of fine grit. Ext. surface dark grey, smooth, somewhat weathered ; appears originally to have been black and burnished. Int. surface dark grey, rough and gritty ; no striæ. Rim curved, lip everted and rounded.

Shoulder ornamented with band of chevron, the lower triangles shaded with cross-hatching ; the pattern is bordered above and below by two girth grooves enclosing a low cordon.

Found in Dwelling-mound XVIII.

P 216. Fragment of an ornamented bowl, with rim moulding of unusual shape. Type III.

Max. ext. diam. of rim $6\frac{3}{8}$ ins. ; max. ext. diam. of body $7\frac{7}{8}$ ins. ; height (approx.) $5\frac{1}{2}$ ins. ; average thickness of ware $\frac{5}{16}$ in.

Paste dark grey, texture spongy, of light weight ; with small admixture of pieces of stone. Ext. surface yellowish-grey, smooth and burnished. Int. surface black, pitted with small holes ; no striæ. Rim straight, lip flattened with groove on inner surface. From the shape of the rim and lip we surmise the vessel was wheel-made, but owing to the finishing and burnishing the striæ have been obliterated.

Shoulder ornamented with narrow band of cross-hatching. Upper part of body ornamented with band of interlocking semicircles, the oval-shaped spaces between the curves being shaded with cross-hatching. The design is bordered below by a shallow girth groove.

Found in Dwelling-mound V.

P 217. Small fragment of an ornamented bowl.

Max. ext. diam. of rim 5ins. ; max. ext. diam. of body $6\frac{1}{2}$ ins. ; average thickness of ware $\frac{5}{16}$ in.

Paste grey-coloured, fragile ; with quantities of shelly stone which has been burnt white. Ext. surface dark grey, brownish-grey in places ; smooth and burnished. Int. surface dark grey, uneven ; no striæ. Rim curved, lip rounded.

Shoulder ornamented with cordon. Upper part of body ornamented with chevron pattern, the upper triangles being shaded with horizontal lines.

Found in Dwelling-mound V.

P 218. Small fragment of a vessel with unusual rim moulding.

Max. ext. diam. of rim $5\frac{1}{8}$ ins. ; max. ext. diam. of body $6\frac{3}{8}$ ins. ; average thickness of ware $\frac{5}{16}$ in.

Paste dark brownish-grey, fragile, and of light weight, texture spongy and full of small holes. The clay had evidently been mixed with some vegetable substance, the fractured edge in several places showing the impression of small fragments of rush or grass. Ext. surface dark grey, smooth and burnished. Int. surface dark grey and smooth. This vessel was presumably wheel-made, striæ being observable. Rim slightly curved, lip rounded and ornamented with groove on inner surface.

Upper part of body ornamented with chevron design, bordered above by a narrow band shaded with oblique lines, and below by two girth grooves.

Found in Dwelling-mound XVIII.

P 219. Fragment of an ornamented vessel.

Max. ext. diam. of rim $6\frac{1}{8}$ ins. ; max. ext. diam. of body $6\frac{3}{8}$ ins. ; thickness of ware varies from $\frac{5}{16}$ to $\frac{3}{8}$ in.

Paste dark grey, hard baked, strong and heavy ; with admixture of fine grit. Ext. surface dark grey, burnished, showing ridges made by tool. Int. surface dark grey, even, but gritty. Lip rounded ; ornamented with a groove on external surface.

Body ornamented with hanging triangles, shaded with roughly-drawn oblique lines.

Found in Dwelling-mound XVIII.

P 220. Fragment of the upper part of a bowl.

Max. ext. diam. of rim $5\frac{7}{8}$ ins. ; max. ext. diam. of body $6\frac{1}{8}$ ins. ; average thickness of ware $\frac{3}{8}$ in.

Paste dark grey, with admixture of fine quartz grains. Ext. surface dark brownish-grey, smooth, slightly burnished ; horizontal striæ round the rim. Int. surface dark grey, rough ; shows tool-marks. Rim curved, lip everted and rounded.

Shoulder and upper part of body ornamented with band of chevron, the upper triangles being shaded with cross-hatching ; pattern bordered above and below by two girth grooves.

Found in Dwelling-mound II.

P 221. Large fragment of a roughly-made bowl.

Max. ext. diam. of rim 5ins. ; max. ext. diam. of body $6\frac{1}{8}$ ins. ; height (approx.) 4ins. ; average thickness of ware $\frac{5}{16}$ in.

Paste dark grey, light weight ; texture spongy with admixture of quartz and grains of some black substance (largest fragment $\frac{1}{8}$ in. in diam.). Ext. surface yellowish-grey, rough and uneven ; no striæ. Int. surface black, uneven, coated in places with sooty material. Rim curved, dented and uneven ; ornamented on ext. surface with one groove ; lip rounded and everted.

Body ornamented with waved design ; the upper half shaded with cross-hatching, the lower, a festooned band shaded with roughly incised oblique lines. The combined patterns form oval spaces, the centre of which is occupied by a circular depression.

Found in Dwelling-mound XVIII.

P 222. Fragment of a large vessel.

Max. ext. diam. of rim 7ins. ; max. ext. diam. of body $11\frac{1}{8}$ ins. ; height (approx.) 10ins. ; average thickness of ware $\frac{3}{8}$ in.

Paste brownish-grey, with large admixture of fine quartz grains ; texture slightly spongy. Ext. surface varies from brownish-grey to dark grey ; smooth, flaky ; covered with numerous fine superficial cracks ; striæ on rim. Int. surface dark grey, rough to the touch ; pitted with numerous small holes. Rim curved, lip everted and rounded.

Shoulder ornamented with band of cross-hatching, bordered above and below by deeply incised girth grooves. Body ornamented with chevron pattern, the lower triangles being shaded with cross-hatching ; bordered below by two girth grooves.

Found in Dwelling-mound VI.

P 223. Fragment of a low globular bowl.

Max. ext. diam. of rim $4\frac{3}{8}$ ins. ; max. ext. diam. of body $7\frac{1}{8}$ ins. ; height (approx.) $4\frac{1}{8}$ ins. ; average thickness of ware $\frac{1}{4}$ in.

Paste light red, hard baked; colour probably produced by an accidental second firing. Paste contains quantities of fine quartz grains. Ext. surface light red, smooth, horizontal tool-marks on rim. Int. surface red, rough from projecting pieces of grit; no striæ.

Shoulder and body ornamented with lozenge pattern, shaded with cross-hatching. The lozenge is divided horizontally through the middle by two shallow girth grooves and bordered above and below by similar lines.

Found in Dwelling-mound XVIII.

P 224. Fragment of a roughly-made thick vessel. Type XI.

Max. ext. diam. of rim $5\frac{3}{8}$ ins.; max. ext. diam. of body $6\frac{1}{2}$ ins.; average thickness of ware $\frac{7}{8}$ in.

Paste dark grey, strong, with admixture of shelly stone. Ext. surface brownish-grey, uneven. Int. surface grey, rough and uneven.

Ornamented with a coarsely executed and primitive design.

Found in Dwelling-mound XVIII.

P 226. Fragment of a small bowl.

Max. ext. diam. of rim $3\frac{3}{8}$ ins.; max. ext. diam. of body $4\frac{1}{4}$ ins.; height (approx.) $3\frac{1}{2}$ ins.; average thickness of ware $\frac{5}{16}$ in.

Paste light grey, texture granular and friable, with admixture of many small white grains. Ext. surface yellowish-grey, smooth, with distinct parallel striæ round rim. Int. surface covered to a large extent with a brown incrustation. The vessel was probably wheel-made. Rim curved, everted, lip rounded, ornamented with a groove on ext. surface.

Shoulder and body ornamented with six rather uneven grooves.

Found in Dwelling-mound V.

P 227. Small fragment of a cordoned and zoned vessel. Average thickness of ware $\frac{1}{4}$ in.

Paste grey, texture rather coarse. Ext. and int. surfaces pitted with small holes.

The uppermost zone is shaded with cross-hatching, the middle zone plain and slightly convex. The lowermost zone appears to be plain.

Found in Dwelling-mound V.

P 229. Small fragment of a roughly-made vessel.

Max. ext. diam. of rim $6\frac{1}{8}$ ins.; max. ext. diam. of body $7\frac{1}{8}$ ins.; average thickness of ware $\frac{5}{16}$ in.

Paste dark grey, hard baked; texture coarse and spongy, owing to admixture of some material which has become calcined leaving small cavities. Ext. surface dark grey; much pitted with small holes. Int. surface dark grey, smooth but uneven; pitted with large number of holes. Lip rounded, uneven and of variable thickness.

Ornamented with a circular bulge surrounded by a broad groove; part of a curved groove also exists in the lower left-hand corner.

Found in Dwelling-mound VI.

P 230. Small fragment of ornamented pottery. Average thickness of ware $\frac{1}{4}$ in.

Paste light grey, friable and spongy; with admixture of shelly stone, burnt white, and some material, probably of a vegetable nature, which has become calcined leaving small cavities.

Ext. surface dark grey, smooth and pitted. Int. surface varies from buff to dark brownish-grey, smooth and pitted.

Ornamented with an interlocking semicircle pattern, shaded with cross-hatching, bordered by a band of chevron above.

Found in Dwelling-mound XVIII.

P 232. Small fragment of a zoned vessel. Average thickness of ware $\frac{1}{4}$ in.

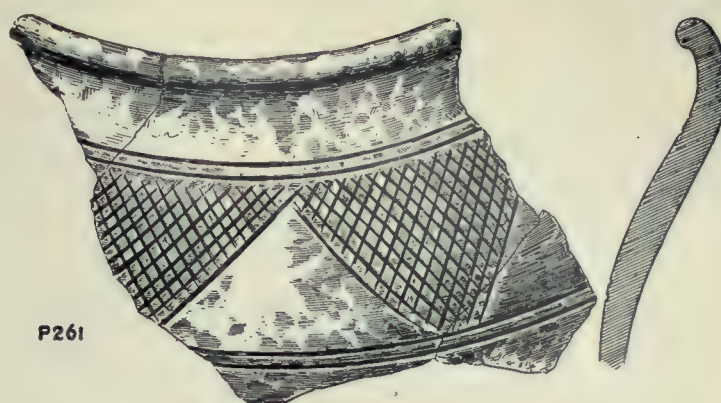
Paste light grey, hard baked and strong, with large admixture of quartz grains. Ext. and int. surfaces light grey and smooth; no striæ.

Ornamented with zones alternately plain and shaded with cross-hatching; the plain band was slightly convex and bordered above and below by angular mouldings.

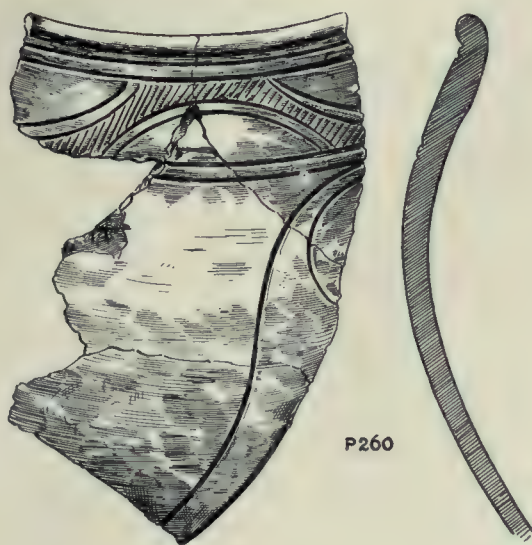
Found in Dwelling-mound V.



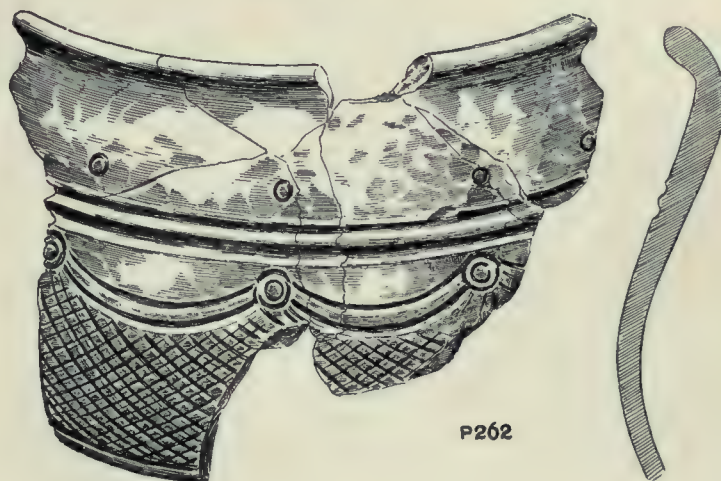
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P261



P260



P262



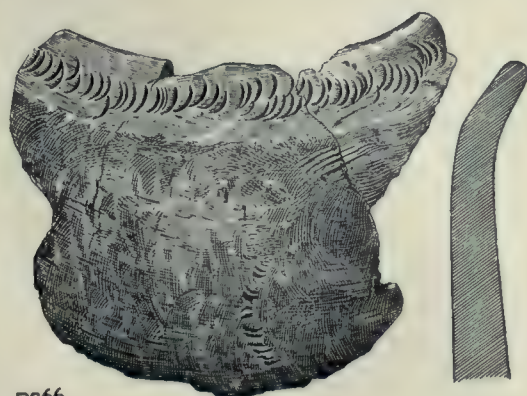
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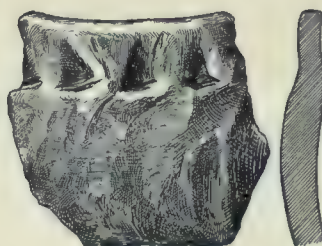
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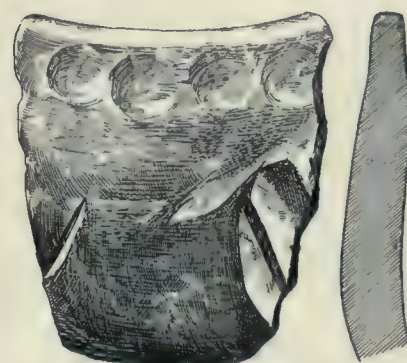
P270



P266



P269



P267

POTTERY FROM GLASTONBURY LAKE VILLAGE.
(About $\frac{1}{2}$ Natural Size).

PLATE LXXXIII.

P 225. Large fragment of a globular bowl of Type III.

Max. ext. diam. of rim $5\frac{1}{4}$ ins. ; max. ext. diam. of body $7\frac{1}{2}$ ins. ; height (approx.) 5 ins. ; average thickness of ware $\frac{5}{16}$ in.

Paste light grey, hard baked and strong ; with admixture of quartz. Ext. surface dark grey in places, in other parts light grey, rough ; no striæ. Int. surface brownish-grey, rough and uneven. Rim straight and nearly vertical, ornamented with groove externally, curved internally, lip rounded, slightly flattened.

Shoulder ornamented with four deep grooves. Body ornamented with chevron pattern, upper triangles shaded with cross-hatching ; bordered below with two girth grooves ; foot ornamented with two grooves.

Found in Dwelling-mound XVIII.

P 228. Part of a wheel-made bowl.

Max. ext. diam. of rim $6\frac{5}{8}$ ins. ; max. ext. diam. of body 8 ins. ; average thickness of ware $\frac{1}{4}$ in.

Paste light grey colour, friable ; with admixture of sand and water-worn stone (the largest piece measuring $\frac{1}{4}$ in. in diam.). Ext. surface dark grey, polished ; well marked with horizontal striæ. Int. surface grey ; marked with striæ. Rim curved and everted, lip rounded.

This pot was undoubtedly wheel-made, and ornamented with a cordon round the shoulder.

Found in Dwelling-mound XVIII.

Another vessel of nearly similar shape, wheel-made and ornamented with a cordon on the shoulder, was found in Dwelling-mound XXIII. A third example, but hand-made, of larger size and with thicker rim was found in Dwelling-mound XII.

P 231. Small fragment of an ornamented pot. Type xv.

Max. ext. diam. of lip (approx.) $6\frac{1}{4}$ ins. ; max. ext. diam. of body (approx.) $7\frac{3}{8}$ ins. ; average thickness of ware $\frac{3}{8}$ in.

Paste dark grey, hard baked and strong, with large admixture of quartz. Ext. surface light yellowish-grey, smooth ; without striæ. Int. surface light grey. Lip somewhat angular ; ornamented with groove on inner surface.

Upper part of body ornamented with two girth grooves enclosing a cordon. The remaining part of the ornament is too fragmentary to describe the design.

Found in Dwelling-mound V.

P 233. Small fragment of an ornamented vessel, with deeply incised pattern. Average thickness of ware $\frac{5}{16}$ in.

Paste reddish-grey, hard baked and strong, with admixture of fine grit. Ext. and int. surfaces grey, smooth ; no striæ.

Found in Dwelling-mound V.

P 234. Small fragment of ornamented vessel, the design of which is too fragmentary to give a description. Average thickness of ware $\frac{5}{16}$ in.

Paste dark grey, friable, with large admixture of sand. Ext. surface dark grey, nearly black ; smooth, polished and flaky ; covered with small superficial cracks. Int. surface dark grey, smooth ; with remains of charred food adhering in places ; no striæ.

Found in Dwelling-mound XVIII.

P 235. Fragment of an ornamented pot. Type xv.

Max. ext. diam. of rim $5\frac{3}{4}$ ins. ; max. ext. diam. of body $6\frac{1}{4}$ ins. ; average thickness of ware $\frac{7}{16}$ in.

Paste dark grey, strong, with large admixture of fine sand. Ext. surface dark grey, nearly black in places, smooth and burnished. Int. surface dark grey ; uneven, with scaly remains of food adhering in places. Lip rounded, ornamented with groove on ext. surface.

Body ornamented with inverted semicircles, duplicated, bordered above with two grooves ; the space enclosed between these is shaded with sharply incised oblique lines.

Found in Dwelling-mound VI.

P 237. Small fragment of an ornamented pot. Type xv.

Max. ext. diam. of rim $5\frac{3}{4}$ ins. ; max. ext. diam. of body $6\frac{1}{4}$ ins. ; average thickness of ware $\frac{3}{16}$ in.

Paste orange-coloured, soft and friable ; texture coarse, with admixture of grit. Ext. surface black in places, where not weathered ; highly polished, scaly ; parallel horizontal striæ on rim. Int. surface dark grey, nearly black in places, scaly. Lip rounded and everted, with groove on lower part of ext. surface.

Body ornamented with chevron pattern, the triangle being outlined with accurately drawn and well moulded grooves of exceptional finish.

Found in Dwelling-mound V.

P 238. Fragment of an ornamented bowl. Type III.

Max. ext. diam. of rim $5\frac{3}{4}$ ins. ; max. ext. diam. of body 7ins. ; average thickness of ware $\frac{5}{16}$ in.

Paste light grey, friable ; with large admixture of fine sand and grit. Ext. surface black, smooth, and burnished ; parallel striæ on rim. Int. surface dark grey, smooth, scaly in places. Ext. surface of rim straight ; int. surface curved. Lip rounded ; ornamented with three grooves.

Shoulder and upper part of body ornamented with band of chevron ; lower triangles shaded obliquely ; bordered above by three and below by two girth grooves.

Found in Dwelling-mound V.

P 240. Fragment of a vessel. Type XIV.

Max. ext. diam. of rim $5\frac{3}{4}$ ins. ; max. ext. diam. of body $6\frac{7}{16}$ ins. ; average thickness of ware $\frac{5}{16}$ in.

Paste dark grey, hard baked and strong ; with large admixture of quartz sand and grit (largest grains $\frac{1}{8}$ in. in diam.). Ext. surface black, smooth, and highly polished ; indistinct striæ on body. Int. surface dark grey, fairly smooth. Rim curved and slightly everted, lip rounded ; rim ornamented with two grooves.

Body ornamented with double band of simple chevron, the lower triangles shaded obliquely ; bordered above and below by a single girth groove.

Found in Dwelling-mound XVIII.

P 241. Fragment of a small roughly ornamented bowl.

Max. ext. diam. of rim $3\frac{7}{8}$ ins. ; max. ext. diam. of body 5ins. ; thickness of ware varies from $\frac{3}{16}$ to $\frac{1}{4}$ in.

Paste dark grey, fairly strong ; with large admixture of shelly stone, burnt white. Ext. surface dark grey, fairly smooth, nearly black, with white spots. Int. surface black, dotted with numerous white spots, uneven and lumpy. Rim badly moulded, uneven, everted, lip angular.

Body ornamented with primitive and roughly incised pattern.

Found in Dwelling-mound XVIII.

P 242. Fragment of an ornamented bowl.

Max. ext. diam. of rim $5\frac{3}{4}$ ins. ; max. ext. diam. of body $7\frac{1}{4}$ ins. ; average thickness of ware $\frac{3}{16}$ in.

Paste dark grey, hard baked and strong ; texture coarse, with admixture of quartz. Ext. surface varies from dark grey to black, smooth, burnished ; horizontal tool-marks ; no striæ. Int. surface dark grey, rough, horizontal tool-marks on rim ; remains of food adhering in places. Rim curved, everted, lip rounded.

Shoulder ornamented with simple band of cross-hatching, bordered above and below by two girth grooves.

Found in Dwelling-mound V.

P 243. Fragment of an ornamented pot. Type xv.

Max. ext. diam. of rim $5\frac{1}{2}$ ins. ; max. ext. diam. of body $6\frac{1}{4}$ ins. ; average thickness of ware $\frac{3}{16}$ in.

Paste dark grey, texture coarse, hard baked and strong ; with admixture of fine quartz grains. Ext. surface dark grey, nearly black in places ; burnished round the rim. Int. surface dark grey, fairly smooth and even ; no striæ on either surface. Lip rounded.

Body ornamented with waved pattern shaded with oblique lines.

Found in Dwelling-mound XVIII.

P 244. Large fragment of a bowl. Type I.

Max. ext. diam. of rim $5\frac{3}{4}$ ins. ; max. ext. diam. of body $7\frac{1}{4}$ ins. ; average thickness of ware $\frac{5}{16}$ in.

Paste yellowish-red, hard baked and strong ; probably fired a second time in an open fire ; clay contains quantities of fine sand. Ext. and int. surfaces yellowish-red ; rough from projecting grains of quartz ; striæ round rim. Rim plano-convex in section, lip rounded and everted.

Shoulder ornamented with narrow band of cross-hatching. Body ornamented with a bold design of hanging semicircles, bordered below by a girth groove, and shaded with cross-hatching.

Found in Dwelling-mound XVIII.

P 245. About one-third of a bowl. Type III.

Max. ext. diam. of rim $5\frac{7}{8}$ ins. ; max. ext. diam. of body 7ins. ; max. ext. diam. of base $3\frac{5}{8}$ ins. ; height $5\frac{1}{8}$ ins. ; average thickness of ware $\frac{3}{8}$ in.

Paste dark grey, hard baked ; with admixture of stone, of grey or white colour from firing. Ext. surface dark grey, nearly black, speckled with grey and white spots ; smooth, polished, horizontal tool-marks on rim. Int. surface dark grey ; smooth, pitted, and speckled ; no striæ. Rim plano-convex in section, lip rounded, everted, and ornamented with groove on inner surface.

Shoulder ornamented with cordon. Body ornamented with an elaborate pattern in which a waved line forms the base of the design. The pattern is bordered below by a narrow band of cross-hatching, and the foot is grooved.

Found in Dwelling-mound XVIII.

PLATE LXXXIV.

P 239. Small fragment of a bowl with rim similar to Type I.

Max. ext. diam. of rim $5\frac{3}{8}$ ins. ; max. ext. diam. of body $7\frac{1}{4}$ ins. ; average thickness of ware $\frac{5}{16}$ in.

Paste varies from dark grey at centre to yellowish-brown near the surface ; strong and hard baked ; mixed with quantity of quartz (largest piece $\frac{1}{8}$ in. in diam.). Ext. surface dark brown, fairly smooth ; parallel horizontal ridges on body, and striæ on rim. Int. surface brown, rough and uneven over the body, but smooth and tooled on the rim. Rim plano-convex, nearly vertical ; lip rounded and everted.

Shoulder ornamented with two deeply incised grooves. Body ornamented with band of chevron pattern, deeply cut ; lower triangles shaded with cross-hatching.

Found in Dwelling-mound XVIII.

P 246. Part of the base of a vessel with ringed foot and omphaloid depression at the centre. Diam. of base $3\frac{7}{8}$ ins.

Paste light grey, with admixture of quartz. Both inner and outer surfaces are of dark grey colour, and semi-polished.

Found in Dwelling-mound I.

Another base, measuring $3\frac{3}{8}$ ins., of almost similar shape was found in Dwelling-mound V.

P 247. Part of the base of a pedestalled vessel, of unusual form ; the foot is hollow and about 1in. in height ; the under-surface is flat. Diam. of base $4\frac{1}{4}$ ins.

Paste lightish-grey, with admixture of quartz. Ext. surface light reddish-brown ; burnished in places. Int. surface varies from dark grey to brown, and is rough to the touch. Both surfaces are much pitted with small holes.

The foot is ornamented with three rows of rope pattern.

Found in Dwelling-mound V.

P 248. Fragment of a small vessel with rim moulding similar to Type VI.

Max. ext. diam. of rim $4\frac{3}{8}$ ins. ; max. ext. diam. of body $5\frac{5}{8}$ ins. ; height (approx.) $4\frac{1}{8}$ ins. ; thickness of ware varies from $\frac{9}{16}$ to $\frac{1}{4}$ in. ; max. thickness of rim $\frac{3}{8}$ in.

Paste lightish-grey, with admixture of fine grit or quartz. Ext. surface dark grey, burnished ; with parallel striæ on rim. Int. surface dark grey, rough ; without striæ. Rim plano-convex in section, nearly vertical, lip everted and rounded.

Shoulder ornamented with three deeply incised grooves. Body ornamented round the upper part with band of chevron, and round the bulge by a band of concentric circle pattern ; bordered above and below with two girth grooves.

Found in Dwelling-mound V.

P 250. Small fragment of an ornamented vessel. The incised design resembles the S-shaped ornament seen on Late-Celtic bronzes, and rarely met with on pottery. Average thickness of ware $\frac{5}{16}$ in.

Paste yellowish-grey, strong; with admixture of fine grains of crushed stone and quartz. Ext. surface dark grey; somewhat weathered and scaling; semi-polished in places. Int. surface dark grey and smooth.

Found in Dwelling-mound LXII.

P 251. Fragment of a bowl of Type III, but with straight rim.

Max. ext. diam. of rim 5 ins.; max. ext. diam. of body 7 ins.; average thickness of ware $\frac{3}{8}$ in.

Paste dark grey, hard baked, coarse grained, with admixture of grit. Ext. surface varies from light to dark grey; burnished in places; no striæ. Int. surface dark grey, rough; coated in places with a layer of black sooty material, probably charred food.

Ornamented on upper part of the bulge with the interlocking semicircle pattern, the ground being shaded with deeply incised cross-hatching. The oval-shaped spaces are depressed.

Found in 1893; Dwelling-mound uncertain.

P 252. Fragment of an ornamented bowl. Type III.

Max. ext. diam. of rim $5\frac{1}{4}$ ins.; max. ext. diam. of body $6\frac{1}{4}$ ins.; average thickness of ware $\frac{1}{8}$ in.

Paste buff colour, fragile, with admixture of very fine quartz sand. Ext. surface much weathered, dark grey; smooth and burnished where intact; parallel striæ round rim. Int. surface grey, fairly smooth, gritty to the touch. Rim nearly vertical, lip everted, and ornamented with groove on inner surface.

Shoulder ornamented with three parallel grooves, shaded with oblique lines. Body ornamented with waved pattern, shaded with oblique lines and cross-hatching.

Found in Dwelling-mound XVIII.

P 253. The greater part of an ornamented bowl of Type III; found in many fragments, about one-half of which are shown in the illustration.

Max. ext. diam. of rim 6 ins.; max. ext. diam. of body $7\frac{1}{4}$ ins.; max. ext. diam. of base $4\frac{1}{8}$ ins.; height $5\frac{1}{8}$ ins.; average thickness of ware $\frac{3}{8}$ in.

Paste dark orange-grey, hard baked and strong, with admixture of small grit and fine sand. Ext. surface dark grey, smooth and burnished, but marked with vertical parallel lines and ridges about $\frac{1}{8}$ in. apart. The ridges are hardly perceptible to the touch, and were produced by smoothing the surface with a tool; striæ appear round the rim. Int. surface dark brownish-grey, fairly smooth, but gritty to the touch; no parallel striæ. Rim straight, lip rounded and everted; ornamented with groove on outer surface.

Shoulder and upper part of body ornamented with a band of graceful scroll or S-shaped pattern, enclosing concentric circles; bordered above by three and below by two girth grooves. The main part of the design was executed by free-hand drawing; the concentric circles by stamping.

Found in Dwelling-mound V.

P 254. Fragment of a straight-sided bowl. Type xv.

Max. ext. diam. of rim $6\frac{3}{8}$ ins.; max. ext. diam. of body $6\frac{1}{2}$ ins.; average thickness of ware $\frac{3}{8}$ in.

Paste brownish-grey, strong and hard baked; with admixture of quartz, and grains of some black substance which is easily polished. Ext. surface dark brownish-grey, weathered in places; smooth and burnished in other parts. Int. surface varies from dark grey to red; gritty to the touch; no striæ. Lip rounded.

Upper part of body ornamented with narrow band of lozenge pattern shaded with oblique lines, bordered by single grooves.

Found in Dwelling-mound XI.

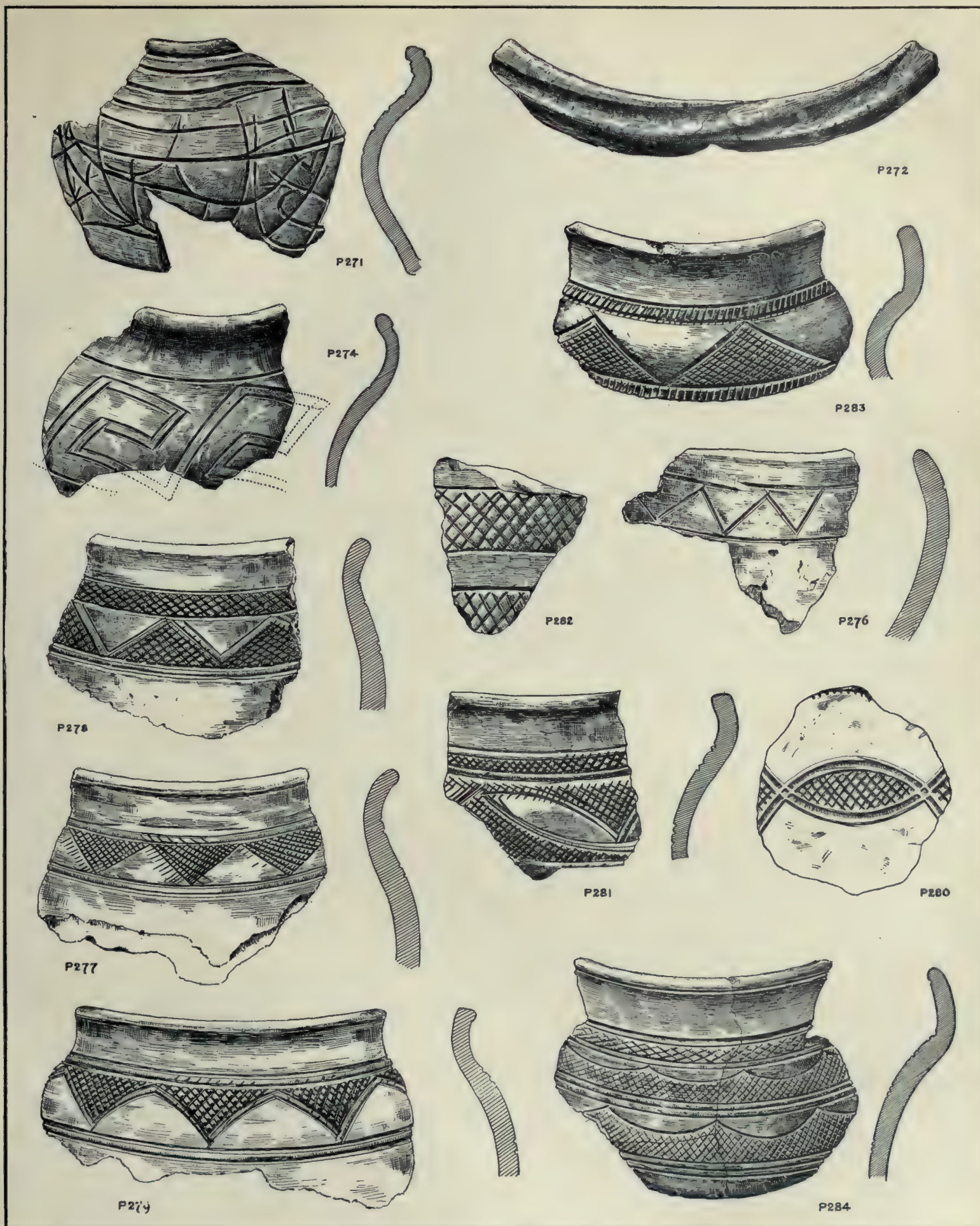
P 255. Fragment of an open-mouthed bowl of Type xxiii, probably wheel-made.

Max. ext. diam. of rim $5\frac{1}{8}$ ins.; max. ext. diam. of body $6\frac{1}{2}$ ins.; average thickness of ware $\frac{3}{8}$ in.

Paste brownish-grey, strong and hard baked, with admixture of fine grit and sand. Ext. surface dark grey, smooth, burnished. Int. surface dark grey, smooth and even. Lip rather thin and pointed.

Ornamented immediately below lip with a narrow band shaded with cross-hatching.

Found in Dwelling-mound IX.



POTTERY FROM GLASTONBURY LAKE VILLAGE.
(About $\frac{1}{2}$ Natural Size).

P 256. Fragment of an ornamented vessel.

Max. ext. diam. of rim $6\frac{1}{4}$ ins. ; max. ext. diam. of body $7\frac{3}{8}$ ins.

Paste dark grey, strong and hard baked, with admixture of fine quartz. Ext. surface brownish-grey, fairly smooth where not weathered. Int. surface dark grey, smooth and even ; no striæ. Lip rounded.

Ornament consist of two girth grooves below the rim, and reversed semicircles, the space enclosed being shaded with oblique incisions.

Found in Dwelling-mound XI.

P 257. Small fragment of an ornamented bowl.

Max. ext. diam. of rim $5\frac{7}{8}$ ins. ; max. ext. diam. of body $7\frac{3}{4}$ ins. ; average thickness of ware $\frac{5}{16}$ in.

Paste dark grey, hard baked, spongy ; with admixture of fine quartz and white stone, and some substance which has become dissolved leaving small holes. Ext. surface varies from light to dark grey ; smooth, semi-polished ; pitted with small holes, not seen in the drawing ; no striæ. Int. surface dark grey, uneven ; pitted with small holes. Rim curved, lip everted and rounded.

Bulge of body ornamented with band of herring-bone pattern, bordered above and below by two girth grooves.

Found in Dwelling-mound XIII.

P 258. Fragments of a small roughly-made bowl.

Max. ext. diam. of rim 5 ins. ; max. ext. diam. of body 6 ins. ; average thickness of ware $\frac{7}{16}$ in.

Paste dark grey, coarse ; with admixture of small stones and fragments of quartz (the largest pieces $\frac{1}{4}$ in. in diam.). Ext. surface dark grey, rough and uneven. Int. surface brownish-grey, cracked, and pitted with small holes. The pot was evidently hand-made, the fractured surface showing that it was built up in rings. Lip rounded.

Upper part of body ornamented with two narrow bands of triangles, shaded obliquely in different directions.

Found in Dwelling-mound XI.

PLATE LXXXV.

P 259. Fragment of a bowl. Type III.

Max. ext. diam. of rim $5\frac{1}{2}$ ins. ; max. ext. diam. of body $6\frac{3}{4}$ ins. ; height (approx.) $4\frac{1}{4}$ ins. ; average thickness of ware $\frac{5}{16}$ in.

Paste dark grey, hard baked, with admixture of small fragments of quartz. Ext. surface dark grey, burnished ; no striæ ; parallel horizontal marks made with burnishing tool. Int. surface dark grey, reddish in places, rough and uneven. Rim vertical, lip rounded and everted.

Shoulder and bulge of body ornamented with a waved design ; bordered above and below by three grooves shaded obliquely ; other parts of the design shaded with cross-hatching.

Found in Dwelling-mound XLIV.

P 260. Large fragment of a vessel. Type v.

Max. ext. diam. of rim $5\frac{1}{2}$ ins. ; max. ext. diam. of body $7\frac{1}{4}$ ins. ; height (approx.) $6\frac{1}{2}$ ins. ; average thickness of ware $\frac{5}{16}$ in.

Paste dark grey, fragile, with admixture of fine sand. Ext. surface black, smooth ; semi-polished ; no striæ. Int. surface black, rough and uneven. Lip rounded and everted.

Ornamented below the lip with a band of hanging and reversed semicircles, with space between shaded with oblique incisions ; bordered above and below by two girth grooves. The lower part of body ornamented with a curved design, which is not complete enough to show the scheme of pattern.

Found in Dwelling-mound IX.

P 261. Fragment of a large vessel, probably of Type VII.

Max. ext. diam. of rim $7\frac{1}{4}$ ins. ; max. ext. diam. of body 11 $\frac{1}{4}$ ins. ; average thickness of ware $\frac{7}{16}$ in.

Paste light brownish-grey, strong, hard baked, heavy ; with large admixture of quartz. Ext. surface dark grey ; where not weathered, smooth. Int. surface light brownish-grey ; fairly even but gritty to the touch. Rim curved, lip rounded and everted.

Shoulder ornamented with band of chevron bordered by two grooves ; upper triangles shaded with cross-hatching.

Found in Dwelling-mound IX.

P 262. Fragment of a large vessel, probably of Type VII ; ornamented with a bold and deeply-cut design.

Max. ext. diam. of rim $6\frac{7}{8}$ ins. ; max. ext. diam. of body $8\frac{7}{8}$ ins. ; average thickness of ware $\frac{5}{16}$ in.

Paste light grey, fragile and soft, with admixture of quartz grains. Ext. surface dark grey, smooth ; no striæ. Int. surface light grey, smooth, but uneven. Rim curved ; ornamented with small stamped circles ; lip rounded and everted.

Shoulder ornamented with cordon bordered on either side by a deep groove. Upper part of body ornamented with band of festoons with stamped concentric circles at the junction of the curves. The ground below the festoons is deeply incised with cross-hatching.

Locality uncertain (*label lost*).

P 266. Fragment of a rough hand-made vessel.

Max. ext. diam. of rim 5ins. ; max. ext. diam. of body $6\frac{1}{4}$ ins. ; thickness of ware varies from $\frac{3}{8}$ to $\frac{1\frac{1}{8}}{16}$ in.

Paste dark grey, nearly black ; coarse grained, friable, with admixture of pieces of stone (measuring as much as $\frac{3}{8}$ in. in diam.). The fractured surfaces also show impressions of small fragments of reed or straw mixed with the clay. Ext. surface dark grey, uneven, cracked and pitted. Int. surface brownish-grey, rough and uneven. Rim inverted, lip rounded, ornamented with an irregular row of nail-marks.

Found in Dwelling-mound XXX.

P 267. Fragment of a large coarse hand-made vessel.

Max. ext. diam. of rim $10\frac{3}{8}$ ins. ; max. ext. diam. of body $11\frac{3}{8}$ ins. ; thickness of ware varies from $\frac{3}{8}$ to $\frac{1\frac{1}{8}}{16}$ in.

Paste light grey, strong and hard baked ; with admixture of small irregular-shaped pieces of white stone (the largest fragments measuring $\frac{1}{4}$ in. in diam.). Ext. surface dark brownish-grey speckled with white, fairly smooth. Int. surface dark grey and smooth.

Rim pinched ; lip square with flat upper surface ; ornamented with a row of shallow circular depressions, some of which show distinctly the skin-marks of finger imprints.

Found in Dwelling-mound XXX.

P 268. Small fragment of a bowl, of which about one-half of the vessel was found. Type III.

Max. ext. diam. of rim 6ins. ; max. ext. diam. of body $7\frac{1}{4}$ ins. ; height $5\frac{1}{4}$ ins. ; average thickness of ware $\frac{5}{16}$ in.

Paste dark brownish-grey, strong, hard baked ; with admixture of quartz and irregularly-shaped pieces of stone. Ext. surface varies from dark grey to black, smooth, burnished ; no striæ. Int. surface uneven and rough ; covered with black scales, presumably of charred food. Rim nearly vertical, lip rounded and everted.

Shoulder ornamented with narrow band of cross-hatching bordered by shallow grooves. Bulge of body ornamented with a series of comma-shaped depressions bordered with a ridge and groove. The concavity of each comma is further ornamented with an oval-shaped design shaded obliquely.

The vessel was found in many fragments, and was much weathered.

Found in Dwelling-mound XXX.

P 269. Fragment of a rough hand-made vessel, with slight bulge of body.

Max. ext. diam. of rim $6\frac{1}{8}$ ins. ; max. ext. diam. of body 7ins. ; thickness of ware varies from $\frac{1}{4}$ to $\frac{1}{8}$ in.

Paste dark grey, strong, hard baked ; with admixture of thin white flakes of shelly stone. Ext. surface varies from dark grey to black, rough and uneven, with vertical parallel grooves made by fingers. Int. surface rough. Rim pinched, nearly vertical ; lip square with flat upper surface.

Ornamented with row of depressions made by a finger-tip, showing well defined nail-marks at lowest part.

Found in Dwelling-mound XXII.

P 270. Fragment of a small bowl.

Max. ext. diam. of body 7 ins. ; average thickness of ware $\frac{1}{4}$ in.

Paste dark grey, soft, friable, and spongy ; with small admixture of grains of white stone. Ext. surface buff-coloured, smooth, burnished in parts where not weathered ; pitted with numerous irregularly-shaped small holes ; no striæ. Int. surface light grey, smooth and pitted.

Shoulder and upper part of body ornamented with band shaded with oblique dentated lines made with a roulette. Lower part of body ornamented with hanging and reversed semicircles,—roulette made. At the point of meeting the curves finish with a stamped circle.

Found in Dwelling-mound XLI.

P 273. Fragment of a large hand-made vessel.

Max. ext. diam. of rim $6\frac{1}{2}$ ins. ; max. ext. diam. of body 11 ins. ; thickness of ware varies from $\frac{5}{16}$ to $\frac{1}{2}$ in.

Paste dark grey, nearly black ; coarse grained, with admixture of pieces of stone. Ext. surface varies from brown to black ; rough and uneven ; pitted with small holes. Int. surface black, rough and uneven.

Rim slightly everted ; lip rounded, and ornamented with grain-shaped grooves, placed obliquely on upper surface.

Found in Dwelling-mound XXXVII.

PLATE LXXXVI.

P 271. Roughly-made bowl.

Max. ext. diam. of rim $4\frac{3}{4}$ ins. ; max. ext. diam. of body $6\frac{1}{2}$ ins. ; max. ext. diam. of base $3\frac{1}{2}$ ins. ; height $3\frac{3}{4}$ ins. ; average thickness of ware $\frac{5}{16}$ in.

Paste dark grey, coarse grained, containing quartz and pieces of stone (largest fragment $\frac{7}{16}$ in. in diam.). Ext. surface black, burnished, and uneven. Int. surface brownish-black, uneven ; spotted with white and brown-coloured pieces of stone. Rim curved, lip everted, rounded, and ornamented with grooves on inner and outer surfaces. Base ornamented with one groove.

Body ornamented with a deeply incised design of a primitive and nondescript character.

Found in Dwelling-mound XXVII.

P 272. Fragment of a rough hand-made shallow dish.

Max. ext. diam. of rim $8\frac{1}{2}$ ins. ; height 3 ins. ; average thickness of ware $\frac{1}{2}$ in.

Paste dark brown, coarse grained, spongy, with admixture of a few pieces of stone. Ext. surface dark brown, smooth but uneven ; pitted with small irregularly-shaped holes. Int. surface dark brown ; pitted with small holes, but to a less extent than the outer surface.

Rim inverted ; lip varies from $\frac{5}{8}$ to $\frac{3}{4}$ in. in width ; ornamented with broad shallow grooves running obliquely from the outer to inner margins.

Found in Dwelling-mound XXXVII.

P 274. Fragment of a wheel-made bowl.

Max. ext. diam. of rim $5\frac{3}{4}$ ins. ; max. ext. diam. of body $6\frac{7}{8}$ ins. ; average thickness of ware $\frac{1}{4}$ in.

Paste dark brownish-grey, coarse grained, with admixture of quartz and stone. Ext. surface varies from brown to black, smooth, even ; burnished in places ; no striæ, but parallel horizontal marks round the rim. Int. surface brownish-grey, fissured, gritty ; with parallel horizontal ridges. Rim curved and everted, lip rounded ; ornamented with a groove on inner surface.

Body ornamented with a band of diagonal key-pattern, bordered by single grooves.

Found in Dwelling-mound XXXVIII.

P 276. Small fragment of a roughly-made bowl.

Max. ext. diam. of rim $6\frac{3}{4}$ ins. ; max. ext. diam. of body $7\frac{3}{4}$ ins. ; average thickness of ware $\frac{3}{8}$ in.

Paste dark grey, of light weight, porous ; made of fine levigated clay with small admixture of some vegetable substance. Ext. surface varies from buff to black ; smooth, with soapy feel ; pitted with small holes. Int. surface dark grey ; smooth, uneven, with soapy feel. Lip rounded and inverted.

Ornamented below the rim with narrow band of simple zigzag lines.

Found in Dwelling-mound L,

P 277. Fragment of an ornamented bowl.

Max. ext. diam. of rim $5\frac{7}{8}$ ins. ; max. ext. diam. of body $6\frac{3}{8}$ ins. ; average thickness of ware $\frac{3}{8}$ in.

Paste dark grey, heavy and strong, with large admixture of quartz and crushed stone. Ext. surface dark grey, fairly smooth ; flecked with small spots of light grey. Int. surface dark grey, rough and uneven. Rim everted, lip rounded ; tool-marks round the rim.

Shoulder ornamented with narrow band of hanging triangles, shaded with cross-hatching, and bordered above and below by two girth grooves.

Found in Dwelling-mound LVI.

P 278. Fragment of the upper part of an ornamented vessel.

Max. ext. diam. of rim $5\frac{3}{4}$ ins. ; max. ext. diam. of body $6\frac{3}{8}$ ins. ; average thickness of ware $\frac{3}{8}$ in.

Paste dark grey, heavy and friable, with large admixture of crushed stone. Ext. surface varies from brown to black ; smooth, cracked and pitted. Int. surfaces varies from light to dark brown ; fairly smooth, much cracked and pitted. Rim everted, lip rounded.

Shoulder ornamented with chevron design, the lower triangles being shaded with cross-hatching ; bordered above by narrow band of cross-hatching, and below by two girth grooves.

Found in Dwelling-mound LVI.

P 279. Fragment of a large bowl.

Max. ext. diam. of rim $6\frac{1}{4}$ ins. ; max. ext. diam. of body $7\frac{3}{8}$ ins. ; average thickness of ware $\frac{5}{16}$ in.

Paste dark grey, strong, coarse grained, with admixture of quartz and small fragments of stone.

Ext. surface dark grey, smooth, much cracked ; parallel horizontal striæ on rim and body. Int. surface dark brownish-grey ; covered with superficial cracks, smooth but uneven. Rim slightly everted, lip flattened.

Shoulder and upper parts of bulge ornamented with a chevron design, the triangles being bordered by slightly arched grooves, and shaded with cross-hatching. The design is bordered above and below by two girth grooves.

Found in Dwelling-mound LVII.

P 280. Part of an ornamented base of dark grey paste.

The design is produced by overlapping the segments of two circles, the enclosed spaces being shaded with cross-hatching.

Found in Dwelling-mound LVII.

P 281. Small fragment of an ornamented vessel.

Max. ext. diam. of rim $5\frac{3}{8}$ ins. ; max. ext. diam. of body $6\frac{5}{8}$ ins. ; average thickness of ware $\frac{5}{16}$ in.

Paste dark brownish-grey, strong and heavy ; coarse grained, with admixture of fine sand, quartz, and fragments of stone (largest piece $\frac{1}{8}$ in. in diam.). Ext. surface black, smooth and burnished, covered with fine superficial cracks ; parallel horizontal striæ on rim and body. Int. surface brown, rough and uneven, covered with fine cracks ; horizontal tool-marks on rim. Rim slightly everted, lip somewhat flattened.

Shoulder and upper part of body ornamented with a deeply incised pattern of interlocking semi-circles, the ground above and below being shaded with diagonal cross-hatching. The pattern is bordered above by a narrow band of cross-hatching.

Found in Dwelling-mound LVI.

P 282. Small fragment of a large vessel of brownish-grey paste, of light weight. The ware varies from $\frac{5}{16}$ to $\frac{7}{16}$ in. in thickness.

Ext. surface grey, smooth, soapy to the touch ; pitted with small holes. Int. surface dark grey, uneven and pitted.

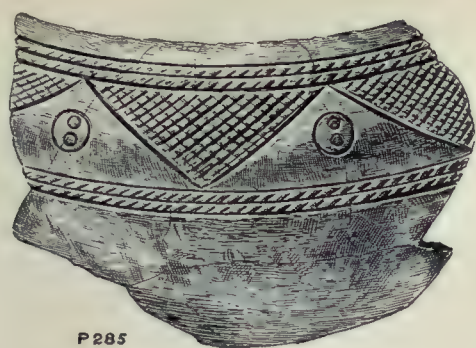
Ornament consists of horizontal zones, alternately plain and shaded with coarse cross-hatching.

Found in Dwelling-mound LVI.

P 283. Fragment of ornamented bowl.

Max. ext. diam. of rim $5\frac{7}{8}$ ins. ; max. ext. diam. of body 7ins. ; average thickness of ware $\frac{5}{16}$ in.

Paste brownish-grey with large admixture of quartz and fine sand. Ext. surface dark grey, smooth ; coated with a veneer which has flaked off in places ; parallel horizontal tool-marks on rim and body ;



P285



P286



P287



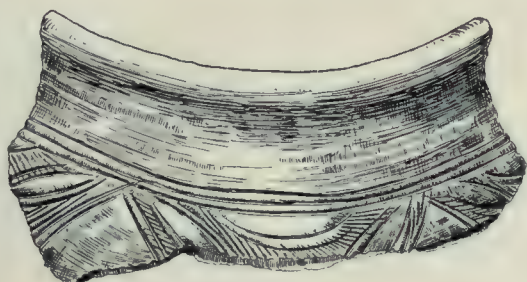
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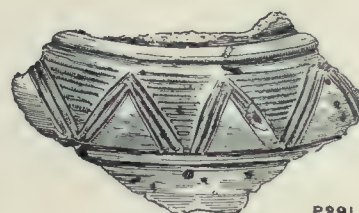
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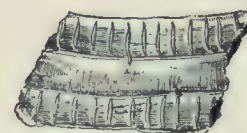
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P290



P291



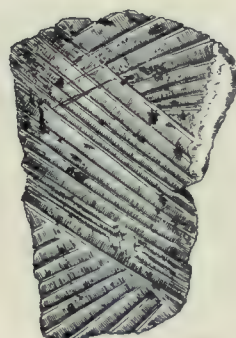
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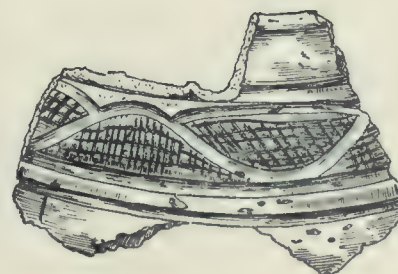
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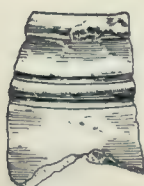
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P295



P296



P297



P300



P301

POTTERY FROM GLASTONBURY LAKE VILLAGE.

(About $\frac{1}{2}$ Natural Size).

no striæ. Int. surface varies from dark grey to black; sandy to the touch; tool-marks on rim; no striæ. Rim slightly curved outwards, lip rounded.

Shoulder and upper part of bulge ornamented with a band of chevron, the lower triangles being shaded with diagonal cross-hatching. The pattern is bordered above and below by narrow bands shaded with nearly vertical lines. The whole design is deeply incised.

Found in Dwelling-mound LVI.

P 284. Fragment of a large bowl, probably of Type iv.

Max. ext. diam. of rim 6ins.; max. ext. diam. of body $8\frac{1}{4}$ ins.; thickness of ware varies from $\frac{5}{16}$ to $\frac{1}{2}$ in.

Paste dark grey, with large admixture of quartz grains. Ext. surface buff, even, gritty to the touch. Int. surface yellowish-grey, gritty, uneven, pitted. Rim slightly curved outwards; lip rounded, and ornamented with groove on outer surface.

Shoulder and upper part of body ornamented with two bands of festooned lines, the ground below being shaded with diagonal cross-hatching. Each band is bordered below by three girth grooves. The pattern is bordered above by a narrow band of cross-hatching between double grooves.

Exact locality uncertain.

PLATE LXXXVII.

P 285. Fragment of an ornamented bowl.

Max. ext. diam. of body (approx.) $6\frac{5}{8}$ ins.; thickness of ware varies from $\frac{1}{4}$ to $\frac{5}{16}$ in.

Paste brownish-grey, with admixture of shelly stone. Ext. surface varies from light brown to dark grey; fairly smooth, but pitted; lower part of body burnished, and covered with a light grey-coloured veneer. Int. surface varies from brown to dark grey; pitted, rough and uneven.

Ornamented with a broad band of hanging triangles, shaded with oblique cross-hatching and bordered above and below by three girth grooves shaded obliquely. The central part of each lower plain triangular space is occupied by stamped circles, inset with two of smaller dimensions arranged vertically.

Found in Dwelling-mound III.

P 286. Fragment of a cup or straight-sided bowl. Type xv.

Max. ext. diam. of rim $4\frac{1}{8}$ ins.; max. ext. diam. of body $4\frac{1}{2}$ ins.; max. ext. diam. of base $4\frac{1}{8}$ ins.; height $3\frac{1}{8}$ ins.; thickness of ware varies from $\frac{1}{8}$ to $\frac{5}{16}$ in.

Paste dark brownish-grey; hard baked with admixture of sand and small pieces of stone. Ext. surface brownish-black, burnished, scaly, fairly smooth; with vertical tool-marks; no striæ. Int. surface brownish-black, smooth. Lip rounded.

Ornament consists of two rows of circular indentations immediately below the rim.

Found in trenching near Dwelling-mounds XXXVI and XXXVII.

Fragments of two vessels with similar ornament were found in Dwelling-mound XXIX. (See also P 138, Plate LXXVII).

P 287. Small fragment of an ornamented bowl.

Max. ext. diam. of rim $5\frac{5}{8}$ ins.; max. ext. diam. of body $6\frac{5}{8}$ ins.; thickness of ware from $\frac{3}{16}$ to $\frac{1}{2}$ in.

Paste dark grey, with large admixture of quartz grains. Ext. surface dark grey, smooth, burnished. Int. surface black, smooth; no striæ. Rim straight, slightly everted, lip rounded.

Shoulder ornamented with broad band of cross-hatching $\frac{7}{8}$ in. in width, from which hang festoons or triangles similarly shaded. The spaces are occupied by circular depressions $\frac{3}{8}$ in. in diam.

Found in Dwelling-mound XXI.

P 288. Small fragment of a large thick vessel with heavy rim.

Max. ext. diam. of rim $8\frac{1}{4}$ ins.; average thickness of ware $\frac{3}{8}$ in.

Paste light grey, coarse grained, with admixture of shelly stone. Ext. surface varies from dark grey to buff, smooth; surface much cracked. Int. surface brownish-grey, pitted, fairly smooth. Rim heavy, everted, burnished, lip angular.

Ornamented below rim with a band $\frac{5}{8}$ in. in width, shaded with oblique lines. Hanging from this are bands shaded with grain-shaped indentations.

Found in Dwelling-mound LXIX.

P 289. Fragment of an ornamented bowl.

Max. ext. diam. of rim $4\frac{7}{8}$ ins. ; max. ext. diam. of body $6\frac{1}{4}$ ins. ; average thickness of ware $\frac{5}{16}$ in.

Paste dark brownish-grey, with large admixture of quartz. Ext. surface varies from black to light red ; flecked with whitish spots ; smooth and burnished in places. Int. surface same colour as outer ; gritty and uneven. Rim everted, lip incomplete.

Shoulder and upper part of bulge ornamented with a band of lozenge-shaped spaces $\frac{2}{3}$ ins. in depth. The lozenge pattern is bordered above and below by single incised grooves, and divided by a horizontal line through the centre so as to produce a double row of triangles. The triangles are alternately plain and shaded, with oval-shaped indentations.

Found in Dwelling-mound XVI.

P 290. Fragment of the upper part of a globular bowl.

Max. ext. diam. of rim $5\frac{3}{8}$ ins. ; max. ext. diam. of body $6\frac{3}{4}$ ins. ; average thickness of ware $\frac{5}{16}$ in.

Paste dark grey, heavy, with large admixture of quartz sand. Ext. surface dark grey, smooth, burnished ; horizontal tool-marks round the rim. Int. surface varies from light red to black ; gritty to the feel ; no striæ. Rim curved, lip rounded and grooved on inner surface.

Shoulder ornamented with three horizontal grooves, from which hang festoons and a chevron design which is not sufficiently complete to describe accurately.

Found in Dwelling-mound XLIX.

P 291. Small fragment of a globular bowl. Average thickness of ware $\frac{5}{16}$ in.

Paste brownish-grey, spongy, and of light weight. Ext. surface dark brownish-grey, smooth, burnished. Int. surface black, pitted and uneven.

Shoulder ornamented with a cordon. Upper part of body ornamented with a band of chevron drawn with triple lines $\frac{3}{8}$ in. in depth ; and bordered below by two girth grooves. The upper triangles are shaded with horizontal lines.

Found in Dwelling-mound XXXVIII.

P 292. Fragment of a vessel probably of Type iv.

Max. ext. diam. of rim $5\frac{3}{8}$ ins. ; max. ext. diam. of body $6\frac{1}{4}$ ins. ; average thickness of ware $\frac{5}{16}$ in.

Paste light grey, coarse grained, with large admixture of shelly stone. Ext. surface varies from light red to dark grey ; flecked with white spots ; rough, uneven, with indentations. Int. surface varies from light red to dark brown, with white spots ; fairly smooth, but uneven.

Ornamented with two grooves on outer surface immediately below the lip, which is rounded, and a pattern of nested chevron $\frac{1}{4}$ in. in depth ; bordered below by two girth grooves.

Found in Dwelling-mound XXVII.

P 293. Small fragment of a thick, heavy vessel. Paste dark brownish-grey, with large admixture of quartz.

Ornament consists of two rows of chevron ; the triangles are shaded with deeply incised lines alternately, in different directions.

Found in Dwelling-mound IX.

P 294. Fragment of a large, thick hand-made vessel. Average thickness of ware $\frac{1}{2}$ in.

Paste light brownish-grey, coarse grained, spongy and of light weight. Ext. surface dark brownish-grey ; smooth, pitted, burnished. Int. surface black, rough and uneven.

The scheme of ornament is incomplete, but is probably part of a broad band of a chevron pattern. Found in Dwelling-mound XLIX.

P 295. Portion of the rim and side of a coarse hand-made vessel. Thickness of ware varies from $\frac{1}{4}$ to $\frac{7}{16}$ in.

Paste dark brownish-grey, with admixture of stone and shelly material. Ext. surface varies from light grey to black ; smooth, pitted, burnished. Int. surface black, pitted and uneven. Rim straight, everted ; lip rounded.

Shoulder ornamented with a waved design, the ground being roughly shaded with cross-hatching, and bordered above with one and below with two grooves. The waved line and grooves were made with a blunt-pointed tool slightly over $\frac{1}{8}$ in. in width.

Found in Dwelling-mound IX.

P 296. Small fragment of a bowl.

Max. ext. diam. of rim $6\frac{1}{4}$ ins. ; max. ext. diam. of body 7 ins. ; average thickness of ware $\frac{3}{8}$ in.

Paste dark grey, coarse grained, with small admixture of quartz. Ext. surface varies from buff to dark grey ; smooth, even, slightly pitted ; no striæ. Int. surface dark grey, fairly smooth but uneven, pitted. Rim everted, lip rounded.

Ornamented with bands of lattice-work, bordered by two grooves.

Dwelling-mound uncertain.

P 297. Small fragment of the rim of a hard baked hand-made vessel. Paste light grey, lip curved and everted.

Ornamented with a cordon $\frac{9}{16}$ in. in width.

Found in Dwelling-mound XLIX.

P 298. Small fragment of the rim of a hand-made vessel.

Paste dark grey, nearly black ; coarse grained with admixture of pieces of stone. Ext. surface buff-coloured, rough and uneven. Int. surface nearly black, uneven.

Ornamented with two narrow bands shaded with vertical lines.

Found in Dwelling-mound XLIX.

P 299. Small fragment of the rim of a hand-made vessel.

Paste light grey colour, with large admixture of stone and grit. Ext. surface black, smooth, burnished. Int. surface black and uneven, burnished. Lip thick and rounded.

Ornamented with two broad flattened cordons.

Found in Dwelling-mound XLIX.

P 300. Small fragment of an ornamented vessel.

Paste light grey, with admixture of whitish stone or grit and a vegetable substance. Ext. and interior surfaces dark brownish-grey ; horizontal tool-marks.

Ornamented with bands consisting of dotted lines bordered on either side by a groove. The design is incomplete.

Found in Dwelling-mound XXI.

P 301. Fragment of an ornamented vessel.

Paste light red, with large admixture of quartz and stone. Ext. surface dark brownish-grey, smooth, burnished. Int. surface light red, rough and gritty.

Ornamented with a flamboyant pattern shaded with rounded indentations.

Found in Dwelling-mound XLIX.

PLATE LXXXVIII.

P 303. Fragment of the rim and side of a heavy hand-made vessel of globular shape.

Max. ext. diam. of rim $6\frac{7}{8}$ ins. ; max. ext. diam. of body 9 ins. ; thickness of ware varies from $\frac{5}{16}$ to $\frac{1}{2}$ in.

Paste dark brownish-grey, with large admixture of quartz. Ext. surface dark brownish-grey ; originally coated with a thin black burnished veneer which has flaked off ; smooth where not weathered. Int. surface brownish-grey, rough and uneven. Rim slightly everted, lip rounded, but somewhat flattened on upper surface ; inner surface grooved.

Shoulder and body ornamented with design of interlocking semicircles ; the triangular spaces above are shaded with cross-hatching. Lower part of body ornamented with a curved design.

Exact locality uncertain (*label lost*).

P 304. Portion of the rim and body of a globular bowl.

Max. ext. diam. of rim $6\frac{1}{8}$ ins. ; max. ext. diam. of body $7\frac{3}{8}$ ins. ; thickness of ware varies from $\frac{1}{4}$ to $\frac{7}{16}$ in.

Paste dark grey, hard baked, strong and heavy, with admixture of quartz. Ext. surface varies from light brownish-grey to black ; smooth, burnished (specially round the rim). Int. surface brownish-black ; fairly smooth ; no striæ. Rim curved and everted, lip rounded.

Shoulder ornamented with a narrow band of double-line chevron, bordered above by three and below by two grooves.

Found in Dwelling-mound LVI.

P 305. Portion of the rim and upper part of a globular bowl.

Max. ext. diam. of rim $5\frac{1}{8}$ ins. ; max. ext. diam. of body $5\frac{9}{16}$ ins. ; average thickness of ware $\frac{5}{16}$ in.

Paste dark grey, with large admixture of white shelly stone. Ext. surface varies from dark brownish-grey to black ; smooth, burnished in places. Int. surface dark brownish-grey, indented ; flecked with white or light grey spots ; no striæ. Rim everted, lip rounded.

Shoulder ornamented with a festoon design roughly shaded with coarse cross-hatching ; junction of festoons ornamented with an irregular circular depression, probably made with finger-tip.

Found in Dwelling-mound XXI.

P 307. Fragment of a globular bowl.

Max. ext. diam. of rim $5\frac{3}{8}$ ins. ; max. ext. diam. of body $6\frac{1}{8}$ ins. ; average thickness of ware $\frac{5}{16}$ in.

Paste dark grey, with admixture of calcite. Ext. surface brownish-grey ; rough, gritty to the touch. Int. surface dark grey, speckled with white spots ; gritty, and uneven. Rim nearly vertical ; inner surface curved, lip everted and rounded.

Shoulder ornamented with narrow band shaded with oblique lines. Upper part of body ornamented with a lozenge pattern shaded with diagonal cross-hatching, bordered below with two girth grooves.

Found in Dwelling-mound XV.

P 308. Fragment of a bowl.

Max. ext. diam. of rim $5\frac{1}{8}$ ins. ; max. ext. diam. of body 7 ins. ; thickness of ware varies from $\frac{1}{4}$ to $\frac{5}{16}$ in.

Paste dark grey, hard baked and strong, with considerable quantity of quartz. Ext. surface varies from buff to black ; smooth, burnished ; no striæ, but horizontal tool-marks round rim and on the body. Int. surface dark brownish-grey, black in places ; uneven and indented. Rim curved, smooth, nearly vertical ; lip everted and rounded.

Shoulder ornamented with band $\frac{3}{4}$ in. in depth, bordered by girth grooves. Band partly shaded with oblique lines ; it is uncertain if this was intended to be the finished design or whether the band was to be completely filled with incisions.

Found in Dwelling-mound XXIX.

P 309. Fragment of the rim of a large globular bowl.

Max. ext. diam. of rim $6\frac{1}{8}$ ins. ; max. ext. diam. of body $7\frac{1}{8}$ ins. ; average thickness of ware $\frac{3}{4}$ in.

Paste dark grey, with admixture of shelly stone ; hard baked, strong and heavy. Ext. surface varies from light grey to black ; smooth, burnished. Int. surface brownish-grey, rough and uneven. Rim heavy and everted, nearly straight, lip rounded ; horizontal tool-marks on inner surface of rim.

Shoulder and upper part of body ornamented with a band of chevron drawn with five or six lines. The triangular spaces are occupied with a stamped circle. The band is bordered on either side by triple girth grooves.

Found in Dwelling-mound XXII.

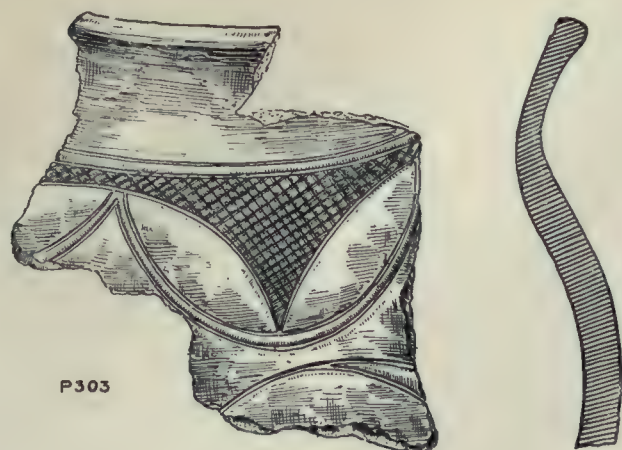
P 310. Fragment of a bowl.

Max. ext. diam. of rim $5\frac{7}{8}$ ins. ; max. ext. diam. of body $6\frac{3}{8}$ ins. ; average thickness of ware $\frac{3}{4}$ in.

Paste dark grey, light in weight, spongy. Ext. surface varies from buff to dark grey ; fairly smooth, pitted ; no striæ. Int. surface brownish-grey, uneven, much pitted. Rim plano-convex in section ; lip rounded and grooved on the outer surface.

Shoulder and upper part of bulge ornamented with a band of meander design, consisting of parallel incised and dotted lines, bordered above and below by similar lines of ornament.

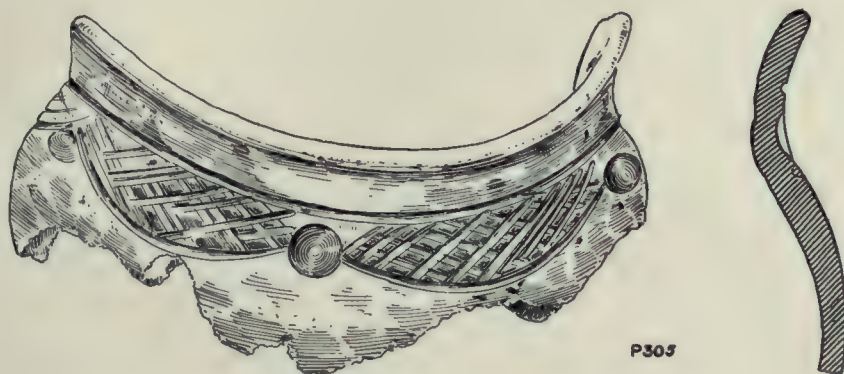
Found in trenching E.S.E. of Dwelling-mound LXXXIII.



P303



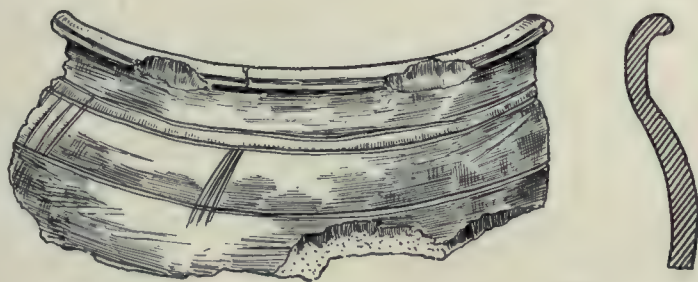
P304



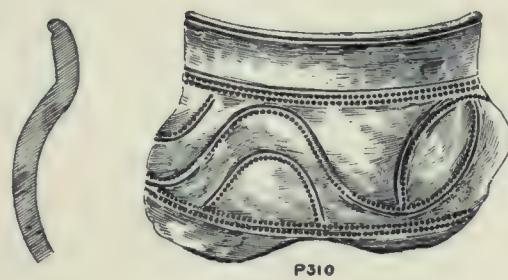
P305



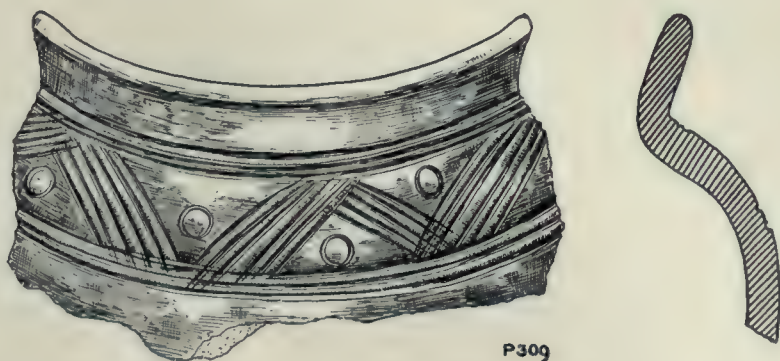
P307



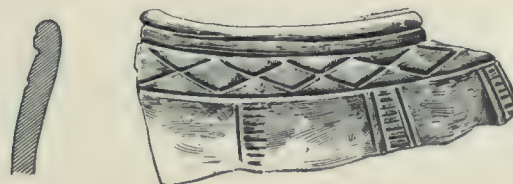
P308



P310



P309



P311



P112

POTTERY FROM GLASTONBURY LAKE VILLAGE.

(All $\frac{1}{2}$ Natural Size, except P112, P310 and P311, which are $\frac{1}{3}$).

P 311. Fragment of a bowl, one of several.

Max. ext. diam. of rim 7ins. ; max. ext. diam. of body 8ins. ; average thickness of ware $\frac{5}{16}$ in.

Paste light brownish-grey, coarse-grained and heavy ; with large admixture of shelly stone and calcite. Ext. and int. surfaces light brownish-grey, rough and gritty. Lip rounded.

Ornamented with a narrow band of lozenge design below the rim, from which at intervals of about 1in. hang vertical bands shaded with horizontal lines. The pattern is incomplete, and weathered.

Found in Dwelling-mound LXXI.

P 112. The upper half of a globular bowl. Type iv.

Max. ext. diam. of rim 6 $\frac{1}{2}$ ins. ; max. ext. diam. of body 7 $\frac{1}{4}$ ins. ; average thickness of ware $\frac{1}{4}$ in.

Paste dark grey nearly black, with admixture of quartz. Ext. surface varies from brown to black ; smooth and burnished where not weathered. Int. surface black, rough and uneven. Rim plano-convex in section, nearly vertical ; lip everted and rounded.

Upper part of body ornamented with a band of S or scroll design $\frac{7}{8}$ in. in depth ; bordered above and below by two shallow grooves. The central part of each scroll is occupied with a dot-and-circle.

Found in Dwelling-mound LXXII.

CHAPTER XVII.

OBJECTS OF UNBAKED CLAY.

By ARTHUR BULLEID, F.S.A.

DURING the process of tracing the border-palisading, the ground immediately outside was systematically trenched for a width varying from 10 feet to 30 feet around the entire margin of the Village. From the number and heterogeneous character of the objects found in the peat it was distinctly proved that this position was the common tilting-ground of refuse and discarded objects, among which was a smaller number of lost articles.

It may not be surprising perhaps when we consider the enormous bulk of clay imported by boat to the site that a certain amount of it should be found in the ground immediately outside the village-border, either dropped by accident or intentionally flung into the surrounding water and swamp.

It was during the digging of the peat that a series of objects of unbaked clay was brought to light. On account of the softness of both materials it will be at once realized how difficult it was to procure complete or undamaged specimens, and the smallness of the collection may be attributed to this fact.

In several localities the peat was thickly strewn with small pieces of clay in an infinite variety of shapes. Some fragments bore the impression of finger-prints, and even the ridge-marks of the skin. From the irregular way in which other pieces were distributed through the peat, it gave the impression that some children or individuals had been leisurely tossing pieces into the swamp when sitting near the water's edge. At one place close to the s.w. border large irregular masses and lumps of grey clay were found in a heap, weighing probably a ton altogether, and having the appearance of a canoe-load which had capsized.

Scores of unbaked clay sling-pellets, singly or in groups, were found embedded in the peat in all positions surrounding the border. Near the palisading opposite the E. aspect of Mound VIII a larger number was unearthed than in any other locality, and noteworthy among these was a small mass consisting of some thirteen or fourteen specimens grouped in the form of a pyramid. These had evidently fallen into the water by accident at the time of manufacture.

Among other things made of unbaked clay was a triangular-shaped loom-

weight, and the following numbered relics, all of which are figured in Plate LXXXIX :—

Y 1. A flattened disc-shaped cake of light blue grey clay, with rounded margins, and edge at right angles to the plane of both upper and lower surfaces ; pierced near the centre by a circular hole. Ornamented with at least three rows of semicircular impressed or incised marks radiating from the central hole to the margin. The marks were either made by a finger-nail or a gouge-shaped tool. In two of the rows, A and C, the concavity of the small curved line faced towards the central hole ; in the third, B, the concavities were made to face the margin. The rows of ornamentation had the following arrangement :—Row A, on arriving at the margin of the upper surface, passed diagonally across the thickness of the disc to the right, and on gaining the margin of the lower surface was continued along that margin in an unbroken line for 2 ins. ; Row B, on reaching the margin of the upper surface, was continued in nearly a direct line across the thickness of the disc and the lower surface to the central hole ; Row C was incomplete and nearly effaced but appeared to have radiated in the same way as B. The disc was not quite complete as it was unavoidably cut in half by the spade.

The measurements are as follows :—Max. diam. $3\frac{1}{8}$ ins. ; max. thickness $\frac{3}{4}$ in. ; diam. of perforation $\frac{1}{2}$ in. ; average width of curved marks $\frac{1}{4}$ in.

Its use is uncertain, but it may have been intended after baking for a large spindle-whorl. Two baked clay discs (W 44, W 45) of similar form were found in Mound LXII (described in Chapter XVIII and figured in Plate XCII).

Found in the peat near the s. border of the Village.

Y 2. A small disc-shaped object of grey clay, plano-convex in section ; ornamented with a single line of small punched depressions on the convex surface, the marks being arranged in a somewhat irregular circle midway between the perforation and the margin. The hole near the middle was not equidistant from the margin. The object was probably intended for a spindle-whorl when baked.

The measurements are as follows :—Max. diam. $1\frac{7}{8}$ ins. ; max. thickness $\frac{1}{2}$ in. ; diam. of perforation $\frac{1}{4}$ in. ; punched depressions $\frac{1}{8}$ in. in depth, $\frac{1}{16}$ in. in diam.

Found in the peat N. of Mound L.

Y 3. A thick flattened cake of grey clay, of oval outline. The object was not quite complete when found, one margin having been damaged by the spade. The upper surface is ornamented with an incised pattern of shallow curved lines and circles, the design being of rude execution, and nearly obliterated in places. The under-surface is not ornamented.

The measurements are as follows :—Max. diam. $3\frac{1}{8}$ ins. ; min. diam. $2\frac{1}{4}$ ins. ; average thickness $\frac{7}{8}$ in.

Found in the peat outside the palisading, but the exact locality was not recorded.

Y 4. A thin disc-shaped object of grey clay, of irregular outline. Both surfaces are ornamented with an incised pattern of curved lines, the design being rudely executed and unintelligible. The object was probably not intended for any particular purpose, and has the appearance of having been made by a child.

The measurements are as follows :—Max. diam. $2\frac{5}{8}$ ins. ; average thickness $\frac{3}{8}$ in.

Found in the peat outside the border-palisading near the N.E. corner of the Village, but the exact position was unrecorded.

Y 5. A thin disc-shaped piece of clay, with rounded margin and of plano-convex section. The flat surface appears to have been ornamented with shallow lines radiating from the centre, but the design is faint and nearly obliterated. The convex surface is indented with pressure marks made while lying in the peat.

The measurements are as follows:—Max. diam. $1\frac{5}{8}$ ins.; min. diam. $1\frac{1}{2}$ ins.; max. thickness $\frac{3}{8}$ in.

Y 6. A small cup-shaped object. The cavity is oval in outline and the interior surface smooth;—probably moulded by the finger-tip, as the crescentic marks of the nail-end remain in two places in the deepest part. The outer surface is roughly semicircular and faceted presumably with finger-marks.

The dimensions are as follows:—Max. height $\frac{1}{2}$ in.; max. diam. $1\frac{3}{8}$ ins.; max. diam. of cavity $\frac{5}{8}$ in., min. diam. $\frac{1}{2}$ in.; max. depth of cavity $\frac{5}{8}$ in.

Y 7. A globular-shaped object of grey clay, partially perforated. It may have been intended when baked for a spindle-whorl.

The measurements are as follows:—Max. diam. $1\frac{5}{8}$ ins.; min. diam. $\frac{1}{2}$ in.; diam. of perforation $\frac{1}{8}$ in.; depth of perforation $\frac{5}{8}$ in.

Y 8. A small perforated and somewhat flattened ball, possibly intended for a bead. The perforation is of circular section above, but rectangular below.

The dimensions are as follows:—Max. transverse diam. $\frac{7}{8}$ in.; max. diam. parallel with perforation $1\frac{1}{8}$ in.; circular portion of perforation measured $\frac{3}{8}$ in. in diam., the rectangular part $\frac{3}{8}$ by $\frac{1}{8}$ in.

Y 9. A globular-shaped object, damaged and incomplete. Perforated centrally, and probably intended when baked for a spindle-whorl.

The measurements are as follows:—Max. diam. $1\frac{1}{2}$ ins.; min. diam. $\frac{7}{8}$ in.

Y 10. A disc-shaped object, of slightly elliptical outline; probably an incomplete spindle-whorl.

The measurements are as follows:—Max. diam. $1\frac{3}{4}$ ins.; min. diam. $1\frac{5}{8}$ ins.; max. thickness $\frac{5}{16}$ in.

Y 11. A cup-shaped object of somewhat similar shape to Y 6, but of larger size. The margin of the cavity is rounded; interior of cavity pyramidal in shape; surface irregular.

The measurements are as follows:—Max. external diam. $1\frac{7}{8}$ ins.; max. depth $1\frac{1}{8}$ ins.; diam. of cavity across the rim $\frac{3}{4}$ in.; diam. of cavity at lowest part $\frac{7}{8}$ in.; depth of cavity $1\frac{1}{8}$ in.

Y 12. An object of somewhat rectangular outline, and perforated near the centre with round hole which is much damaged on the side shown in Plate LXXXIX. It may have been intended for a spindle-whorl when baked.

The dimensions are as follows:—Max. diam. $1\frac{1}{2}$ ins.; max. thickness $1\frac{1}{8}$ in.; max. diam. of perforation $\frac{3}{8}$ in.

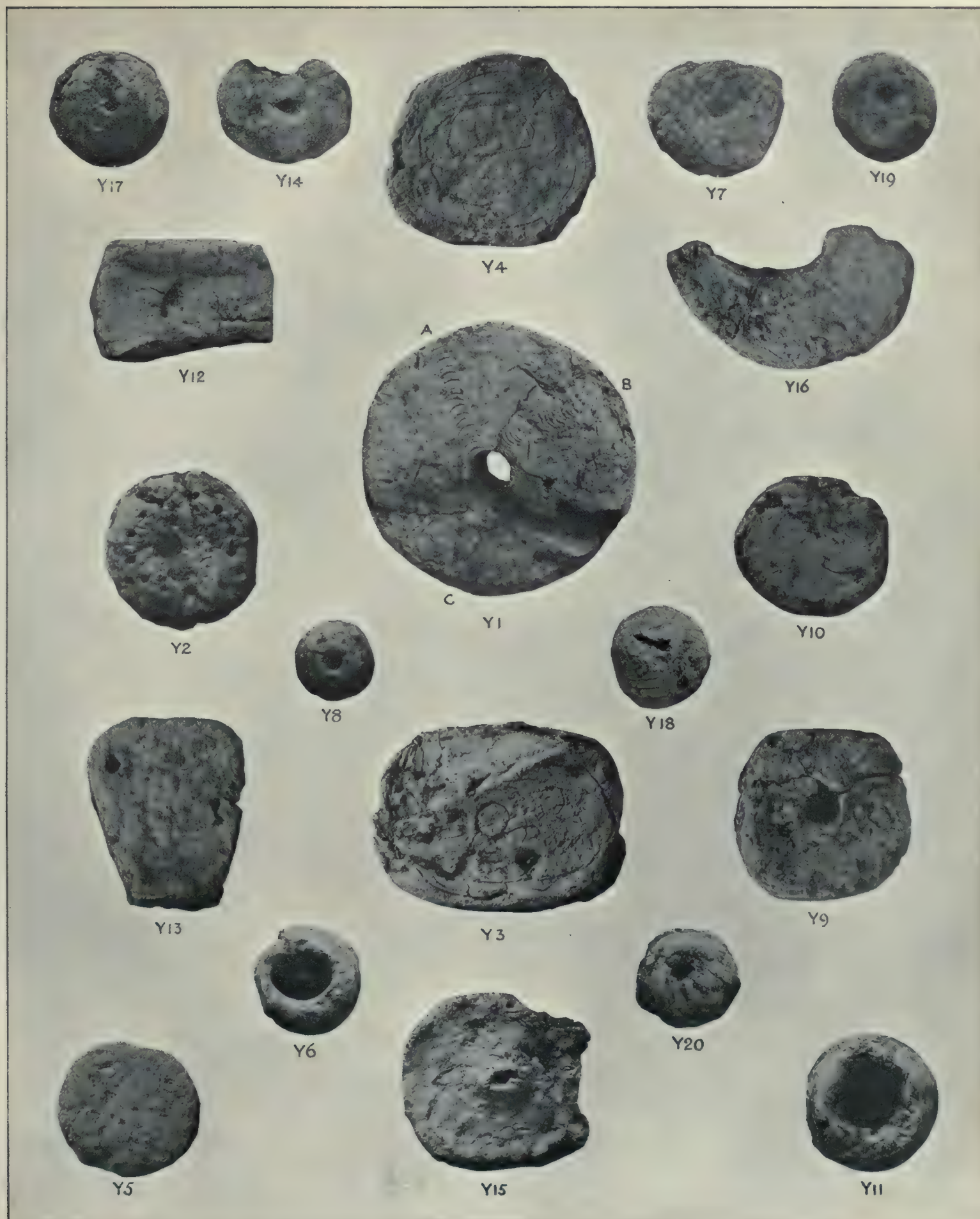
Y 13. A thin triangular-shaped slab perforated in two places with circular holes. The smaller end is incomplete. One surface is plain, the other ornamented with an incised pattern of cross-hatched lines. The object tapers in thickness from the larger to the incomplete end.

The dimensions are as follows:—Max. length $2\frac{3}{8}$ ins.; max. width of large end $1\frac{1}{2}$ ins.; width of small end $1\frac{1}{8}$ ins.; max. thickness of large end $\frac{5}{8}$ in.; max. thickness of small end $\frac{5}{16}$ in.; average diam. of holes $\frac{1}{8}$ in.

Y 14. The larger part of a perforated disc, damaged and incomplete; probably intended when baked for a spindle-whorl. The perforation near the centre is of irregular outline, and damaged during excavating.

The dimensions are as follows:—Max. diam. $1\frac{1}{2}$ ins.; average thickness $\frac{5}{8}$ in.

Y 15. Part of a disc-shaped object, cut and damaged during excavating. It appears to have had a perforation through the centre when in the perfect state, and was perhaps intended for a spindle-whorl when baked.



OBJECTS OF UNBAKED CLAY, GLASTONBURY LAKE VILLAGE.

(The Dimensions of all the Objects are given in Chapter XVII).

From Photographs by Mr. Arthur Bulleid, F.S.A.

The dimensions are as follows :—Max. diam. $2\frac{1}{8}$ ins. ; max. thickness of undamaged portion $\frac{3}{8}$ in. ; diam. of perforation, ext. surface, $\frac{5}{16}$ in., at centre $\frac{3}{16}$ in.

Y 16. Part of a large perforated disc of grey clay, perhaps intended for a spindle-whorl when baked.

The dimensions of the complete object were as follows :—Max. diam. $3\frac{3}{4}$ ins. ; max. thickness $\frac{5}{8}$ in. ; diam. of perforation $\frac{5}{8}$ in.

Y 17. A small perforated cone-shaped object ; incomplete and damaged. It was probably intended for a spindle-whorl when baked.

The dimensions are as follows :—Max. diam. of the lower surface $1\frac{5}{16}$ ins. ; max. thickness $\frac{7}{8}$ in. ; diam. of hole $\frac{3}{8}$ in.

Y 18. A perforated ball, ornamented with incised vertical lines radiating from the margin of the central hole. The intervening spaces are filled with diagonal lines forming an irregular pattern of a very primitive description.

The dimensions are as follows :—Max. transverse diam. $1\frac{1}{8}$ ins. ; max. vertical diam. 1in. ; diam. of perforation $\frac{1}{8}$ in. ; depth of perforation $\frac{5}{8}$ in.

Y 19. A thick disc-shaped object with smooth surfaces, not perforated ; margins rounded. The dimensions are as follows :—Max. diam. $1\frac{3}{8}$ ins. ; max. thickness $\frac{5}{8}$ in.

Y 20. A small ball with damaged surface ; of somewhat pyramidal outline, and partially perforated through the centre.

The dimensions are as follows :—Max. transverse diam. $1\frac{1}{8}$ ins. ; max. vertical diam. $\frac{7}{8}$ in. ; diam. of perforation $\frac{3}{16}$ in. ; max. depth of hole $\frac{5}{8}$ in.

CHAPTER XVIII.

OBJECTS OF BAKED CLAY.

By H. ST. GEORGE GRAY.

THERE was no methodical cataloguing of the numerous objects and pieces of baked clay. The loom-weights were fairly plentiful, and sling-bullets were found by the score. Those which were numbered bear the prefix D = Baked Clay.

Some of the numbered specimens have been described and figured in other chapters, as follows :—The small earthenware pots (D 49, D 50, and D 63), the funnel (D 50), and the two *tuyères* (D 30 and D 78),¹ are described in the chapter on Crucibles in pp. 308, 309, and figured in Plate XLIX (Vol. I).

The disc (D 74) and the two clay beads (D 75 and D 76) are figured in Plate XLIV (Vol. I), and the earthenware “stilt” (D 72) in Fig. 140 (Vol. II); but they are described in this chapter.

Some of the spindle-whorls of baked clay, originally bearing the prefix “D,” have been transferred to Chapter XIX, Spindle-whorls.

This chapter is divided into five sections as follows :—I. Miscellaneous Objects. II. Balls of Clay, partly perforated. III. Sling-Bullets. IV. Loom-Weights. V. Baked Clay connected with the structure of the Huts.²

I. MISCELLANEOUS OBJECTS.

Only the more important shaped pieces of baked clay are described. Dozens of worked pieces, damaged and fragmentary, were found in addition. All the following are figured in Plate XC, unless otherwise stated.

D 16. Small disc with smooth and flat surfaces; not truly circular, max. diam. 16.5mm.; max. thickness 5.5mm.; pierced by a small transverse hole in the centre 1.5mm. in diam.

Found 12ft. N. of the c.p. of Mound XXV, 1893.

D 24. Small circular disc of concavo-convex cross-section; diam. 17mm.; max. thickness 7.5mm.

Found in the peat, 13½ft. E.N.E. of the c.p. of Mound XXIII, 1893.

1. Prof. Boyd Dawkins in his paper on Hod Hill in *Arch. Journ.*, LVII, 60, speaks of “iron slag which had been cooled on the bottom of an earthen *tuyère*.”

2. This section (No. V) has been written by Dr. Bulleid.

D 25. Base of a small pot of baked clay of drab colour, having an ext. diam. of only 24mm. ($\frac{1}{8}$ in.). The body of the vessel is broken off near the base, but what remains of the sides is ornamented with a row of incised spirals, the most shapely of which are seen in the illustration. The base is also ornamented with a rudely formed circular device; the circumference is bounded by triangles (also incised), the apices radiating outwards.

Found on the upper surface of Mound IX, 6ft. N. of the c.p., 1892.

D 36. Rough lump of clay, bun-shaped, the cross-section being plano-convex. The convex surface is much smoother than the other parts. Scorings are seen in various directions. The lump is 74mm. ($2\frac{1}{8}$ ins.) in max. diam.

Found in Mound LXII, 13ft. N. of the c.p., 1892.

D 38. Part of an oblong slab having smooth flat surfaces and squared edges; max. thickness 12mm. Near the longer edge remaining there is a transverse perforation, 3.5mm. in diam. The object is broken across another perforation in a similar position. There is a groove between the complete hole and the edge of the slab on one surface.

Found in Mound LXII, 7ft. N.E. of the c.p., 1892.

D 43. Small ball of clay, perforated; max. diam. 20mm.; perhaps a bead.

D 44. Smooth block of clay of oblong cross-section in both directions; the sides measure 52 by 37 by 30.5mm. The object is bored by a circular hole (diam. 12mm.) in the middle of one of the long surfaces, and it penetrates more than three-quarters of the thickness of the clay. In general form the object has the appearance of a hammer-head.

Found in Mound LXII, $8\frac{1}{2}$ ft. N. of the c.p., 1892.

D 48. Reel-shaped object of a light reddish-brown colour, consisting of a transverse bar connecting two flat circular discs, both of which are damaged. The reel and discs are perforated; the hole on one surface is 3mm. in diam., on the other surface only 1.5mm.¹

Found 15ft. S.W. of the c.p. of Mound XXV, 1894.

D 56. Small ball of clay with rounded sides, and perforated; max. diam. 22mm.; perhaps intended for a small spindle-whorl, or a bead.

Found in Mound V, $10\frac{1}{2}$ ft. S.S.E. of the c.p., 1896.

D 58. Part of a clay ring which appears to have been cut down by a knife; the material is about 8mm. in diam.

Found $18\frac{1}{2}$ ft. N.W. of the c.p. of Mound IX, 1896.

D 62. Cheese-shaped object, diam. 32.5mm.; height 24mm., partially bored through the middle to a depth of about 16mm.; diam. of hole 6.5mm.

Found in Mound IV, $9\frac{1}{4}$ ft. W.N.W. of the c.p., 1896.

D 64. Small finger-marked piece of clay, with pricked markings over most of the surface.

Found in Mound III, 5ft. E. of the c.p., 1897.

D 70. Globular ball of light reddish-brown clay, having thirteen indentations occurring more or less regularly over the surface, except in one part which is bare. These holes appear to be caused by the impress of the thumb and fingers, but whether they are intentional or not it is difficult to decide. The average diam. is 36mm. Its purpose is uncertain and many similar pieces of clay have been found,—few, however, so rounded as this specimen. It may have been designed for use in a game, or it may be a pinched-up lump of clay from which a

1. A somewhat similar object was found by Mr. and Mrs. Cunnington in an inhabited site on Newtown Farm, Allington, Wilts.

spindle-whorl was to be formed. On the other hand the "ball" may have been squeezed up to a convenient size by a potter, ready for use in making vessels of earthenware.

Found in Mound LV, 1½ft. s. of the c.p., 1902.

Figured in Plate XC; also in *Proc. Som. Arch. Soc.*, XLVIII, pt. ii, Plate III, fig. 9.

This specimen is now in the Taunton Museum.

D 72. Piece of clay with three arms and two shorter projections; max. length 46mm. Perhaps a toy, or a "stilt" used in the process of firing pottery.

Found on the second floor of Mound LXVIII, 4ft. s.s.e. of the c.p., 1906.

Illustrated in Fig. 140.

D 74. Disc of bi-convex section, 24.5mm. in diam.; max. thickness 11mm. It is too small for an unfinished spindle-whorl, and may have been intended for use in a game, or as a counter.

Found in trenching in the black earth, 17½ft. n.n.w. of the c.p. of Mound LXXIV, 1906.

Figured in Plate XLIV.

D 75. Globular bead of a light reddish-brown colour, roughly made; diam. 7.2mm.; height 6mm.; diam. of hole about 2.8mm.¹

Found between the first and second floors of Mound LXXXIV, 6½ft. n.n.e. of the c.p., 1907.

Figured in Plate XLIV.

D 76. Globular bead of reddish-brown colour, very roughly made; diam. 10mm.; average height 8.5mm.; diam. of hole 3.8mm.

Found on the first floor of Mound LXXXIV, 1ft. s. of the c.p., 1907.

Figured in Plate XLIV.

D 79. Piece of clay, 57mm. (2¼ins.) in length, and of oval cross-section; flat at the larger end, rounded at the other end. This lump of clay may, in its unburnt condition, have been plugged into a hole in the wall of a hut which was afterwards burnt down.

Found in trenching s. of Mound LXXI, 1905.

D 80. Long, narrow plug, similar to D 79; length 55mm.

W 44. Disc of light reddish-brown colour, probably too large for a spindle-whorl; of oval outline measuring 64.5 by 72.5mm.; max. thickness 13mm.; max. ext. dimensions of the central hole 16 by 17.5mm. The faces are smooth and fairly flat.

Found 16ft. s.w. of the c.p. of Mound LXII, 1892.

Figured in Plate XCII.

W 45. Large disc of brown colour (black in places), too large for a spindle-whorl; of oval outline measuring 97 by 105mm. (about 3¾ by 4½ins.); max. thickness 17.8mm. The faces are smooth and fairly flat. The central hole is countersunk on both surfaces, and has a max. diam. of 25mm. (min. diam. 15mm.). This hole is surrounded on both surfaces by a circular area slightly sunk, 37.5mm. in diam. on one side and 43mm. on the other. The disc was broken in several pieces, but has been repaired. This specimen and W 44 are similar in form to the ornamented disc of unbaked clay, Y 1, figured in Plate LXXXIX.

Found 15ft. w. of the c.p. of Mound LXII, 1892.

Figured in Plate XCII.

1. Earthenware beads were found with burials at Gilton, Kent (B. Faussett's "Inventorium Sepulchrale," 30).

The following objects of baked clay are not figured :—

No.	DESCRIPTION.	LOCALITY.
D 23	Ball of clay, max. diam. 28·5mm., with conical depressions at opposite ends about 8·5mm. deep.	Found in Mound XLII, 9ft. S.E. of the c.p., 1893.
D 37	Lump of clay with a depression made apparently with a stick.	Found in Mound LXII, 13½ft. N. of the c.p., 1892.
D 39	Ball of clay, flattened in places ; max. diam. 37mm.	Found in Mound LXII, 8ft. S.E. of the c.p., 1892.
D 41	Half of a small shallow vessel ; probably a toy.	Found in Mound LXII, 9½ft. N.N.E. of the c.p., 1892.
D 42	Portion of a fairly large flat object having smooth surfaces and rounded edge ; max. length 90mm. ; it has a perforation of oval form, min. dimensions 13 by 11mm.	Found in Mound XXXVII.
D 46	Small ball of clay with flattened sides, perforated by a hole which is excentric ; diam. 22·5mm ; perhaps intended for a small spindle-whorl.	Found 15ft. W.S.W. of the c.p. of Mound XX, 1893.
D 73	Smooth, semi-globular piece of clay, the flat side scored with slight incisions ; diam. 33·5mm.	Found in the black earth at the E. edge of Mound LXXXIII, 12½ft. E.S.E. of the c.p., 1906.
D 77	About one-third of a roughly-made ring-shaped object.	Found 10ft. S.W. of the c.p. of Mound VI, 1896.
D 81	Circular disc, with plano-convex cross-section ; diam. 32mm. ; max. thickness 9mm. ; the flat surface has been scored across the middle from edge to edge.	

II. BALLS OF CLAY, PARTLY PERFORATED.

Large numbers of globular balls of baked clay, each with a hole drilled through at least two-thirds (often three-quarters) of the substance, were collected from various parts of the Village, but chiefly in the vicinity of Mounds LXII, LXIII and LXIV excavated in 1892. Many of these objects are roughly formed, but in some cases great care was taken to smooth the surface of the clay before firing. Some of the specimens are more or less flattened on the upper and lower surfaces, *i.e.* at right angles to the line of the hole.

These objects vary considerably in diameter, a fair average being about 29mm. (1⅛ins.). The diameter of some of the smaller examples is only 16mm., while some of the larger balls are 35mm. across.¹

1. A specimen marked W 165 has a diameter of 34mm. (In the Brit. Mus.).

Three of those found in Mounds LXII—LXIV are figured in Plate XC (D 45, 1 ; D 45, 2 ; D 45, 3). The only ornamented specimen, D 82, is also figured in the same plate ; round the hole and sides nail-marks are seen deeply indented.

The diameter of the hole at the mouth varies according to the size of the ball, but generally speaking it varies from 2.5 to 6.5mm. From specimens which are fractured on the line of the hole it is seen that the perforation diminishes somewhat from the outside inwards, as if intended to receive a stick or shaft finished with a slightly tapering end. No wood was found in association with these balls of clay, and their real purpose has not yet been ascertained.

Bone knobs of similar form, partially perforated, for the butt-end of slender iron pins, are mentioned as having been found in the crannog of Buston, near Kilmaurs.¹

In the British Museum a find—probably of the Early Iron Age—is exhibited consisting of pin-heads of jet, a bronze terret and a bronze counterpoise of spear. These specimens were found below a cairn near Inverury, Aberdeenshire (C. E. Dalrymple Coll., 1856). Three of the globular pin-heads are partially bored ; there is also another split in two on the line of a perforation which extends right through the object.

III. SLING-BULLETS.

Excepting shards of pottery and animal bones no remains were found so abundantly within and outside the boundary of the Lake-village as the baked and unbaked clay sling-bullets, sling-bolts, or sling-pellets, which, especially in the earlier years of the excavations, were found by the hundreds—more often singly but occasionally in groups.² Sling-stones, selected from a beach, were much less frequently found.

Large numbers of these sling-bullets (Plate XC) were found in and near Mounds LXII, LXIV and LXV, in the seasons 1892-4, and they were especially numerous (Plates XXV and XXXIII) in the first-named mound.³ Some forty specimens were found close together near the borders of Mounds XXVI and XLII, at a point where the mounds join at their east margin. Large numbers were discovered in Mound XXXVIII and in the substructure and peat lying south of Mound XLII. They were also very plentiful in the substructure underlying the

1. One is figured in *L.D. of E.*, p. 216, fig. 214.

2. Those found in "groups" were spread over a fairly large area, and there was no evidence of complete stores or heaps of baked sling-bullets having been found. (See Remarks on unbaked sling-bullets, p. 554).

3. Perhaps baked clay objects were made in this dwelling, for not only were the bullets plentiful here, but also several loom-weights of the pyramidal and roll-shaped forms.

east side of Mound LIX; and considerable numbers were dug out of the peat outside the palisading opposite Mounds LIX, LX, and LXI.

On the other hand very few clay bullets—only thirty-one—were found in the excavations in the N. and N.W. of the Village, conducted from 1904 to 1907, as the following table shows:—

Mound.	Bullets.	Mound.	Bullets.
LV	3	LXXV	1
LXVII	1	LXXVI	3
LXIX	2	LXXVIII	2
LXXI	2	LXXIX	1
LXXII	2	Unrecorded locality, 1904-7	10
LXXIII	1		31
LXXIV	3		

There is a close resemblance between the clay sling-bullets from the Village and the Greek and Roman leaden bullets (*glandes*) of the same general form. As General Pitt-Rivers says, "In size the clay pellet naturally exceeds the Roman model, otherwise it would not have been heavy enough to serve as an effective missile; its weight (that from Mount Caburn, Sussex), 263 grains, is the least that would be desirable for such a purpose; the pointed oval form adapts it to lie evenly in the broad bend of the sling, and to receive the rotatory motion imparted to it by the release of one of the thongs."¹

The lake-villagers do not appear to have wasted Mendip lead for the purpose of making sling-bullets of that material; but several leaden bullets were found among the Roman remains at the lead-workings at Charterhouse-on-Mendip. They are said to have been cast on wire cores, and were known to the miners of forty years ago as "clock-weights." Two in the collection of the late Mr. F. A. Knight were figured by him.² There are six specimens from the same locality in Taunton Museum, four of which have been illustrated.³ Some of them are more pointed than others, but one has been hammered flat at both ends. The others vary in length from $1\frac{3}{8}$ to $1\frac{1}{2}$ ins. (34.5 to 39mm.), and in maximum diameter from $\frac{3}{4}$ to 1 in. (18.5 to 25mm.). They weigh 1014, 1235, 1366, 1444 (with flat ends), 1531 and 1967 grains respectively, which gives an average of a little less than 30zs. (Troy).⁴

These weights greatly exceed the typical Greek and Roman bullets of lead. Mr. C. D. E. Fortnum, F.S.A., exhibited at the Society of Antiquaries on April

1. *Archæologia*, XLVI, 467, and Plate xxv, fig. 47.

2. "The Heart of Mendip" (1915), 513.

3. *V.C.H. Somerset*, I, 336, fig. 91, no. 2 (where they are stated to be $3\frac{1}{2}$ ozs. in weight). See also *Proc. Som. Arch. Soc.*, LV, ii, 120.

4. One from Mortoro, Cordova, Spain (inscribed) weighs 30zs. 8grs. (*Proc. Soc. Antiq. Lond.*, 2 ser., II, 266)

29th, 1869,¹ a collection of sling-bullets of lead, those from Perugia of the usual elongated form weighing 488, 700, 885, 984, and 991 grains respectively; also two almond-shaped specimens from Sidon (596 grains and 700 grains), and two others of the first-named form, inscribed, weight 800 grains and 820 grains. He exhibited others from Perugia.²

A leaden bullet found at Ambleside weighs 674 grains. Another was found at Birdoswald, and sixty-seven varying from $\frac{5}{8}$ to $1\frac{1}{2}$ ins. in length at Birrenswark.³

Only one of the above, namely the smallest example from Perugia, weighing 488 grains, is of less weight than the largest clay bullet from the Lake-village (No. 23, Plate XC),—which weighs 531 grains (or 96 grains heavier than the next largest specimen from the Village).

TABLE GIVING THE WEIGHT AND DIMENSIONS OF TWENTY-THREE BAKED CLAY SLING-BULLETS, TYPICAL OF THE SPECIMENS COMMONLY FOUND IN THE GLASTONBURY LAKE-VILLAGE.

No.	WEIGHT IN GRAINS.	LENGTH IN INCHES.	MAX. DIAM.	FIGURED IN	No.	WEIGHT IN GRAINS.	LENGTH IN INCHES.	MAX. DIAM.	FIGURED IN
1	199	$1\frac{3}{8}$	$\frac{3}{4}$	Plate XC	13	331	$1\frac{9}{16}$	1	Plate XC
2	206	$1\frac{11}{16}$	$\frac{3}{4}$	Plate XC	14 ⁵	332	—	—	—
3	206	$1\frac{3}{8}$	$\frac{7}{8}$	Plate XC	15	343 ⁴	$1\frac{5}{8}$	$\frac{7}{8}$	Plate XC
4	214	$1\frac{9}{16}$	$\frac{7}{8}$	Plate XC	16	343	$1\frac{1}{2}$	$\frac{7}{8}$	Plate XC
5 ⁵	246	—	—	—	17 ⁶	365 ⁴	$1\frac{5}{8}$	1	—
6	269	$1\frac{3}{8}$	$\frac{7}{8}$	Plate XC	18 ⁶	367	$1\frac{5}{8}$	1	—
7	297 ⁴	$1\frac{5}{8}$	$\frac{7}{8}$	—	19	379	$1\frac{1}{16}$	$1\frac{5}{16}$	—
8	297	$1\frac{5}{8}$	$\frac{7}{8}$	Plate XC	20 ⁵	394	—	—	—
9	307	$1\frac{5}{16}$	$1\frac{5}{16}$	Plate XC	21	421 ⁴	$1\frac{3}{4}$	$1\frac{5}{16}$	Plate XC
10	317	$1\frac{9}{16}$	$1\frac{5}{16}$	Plate XC	22 ⁶	435 ⁴	$1\frac{5}{8}$	$1\frac{1}{16}$	—
11	320	$1\frac{1}{2}$	$1\frac{5}{16}$	—	23	531 ⁷	$1\frac{1}{16}$	$1\frac{1}{16}$	Plate XC
12	330	$1\frac{9}{16}$	$1\frac{5}{16}$	—					

The table above giving the dimensions and weight of some of the best preserved sling-bullets from the Village shows that their average weight is about 324 grains; but excluding the very large specimen and the four smallest (of which size there

1. *Proc. Soc. Antiq. Lond.*, 2 ser., IV, 314.
2. *Ibid.*, 2 ser., II, 269. There is a specimen in Taunton Museum from Perugia weighing 797 grains.
3. *Ibid.*, XVIII, 271, 374.
4. Approximate (a little added to allow for deficiencies).
5. In the Pitt-Rivers Mus., Oxford.
6. In the Taunton Mus.
7. The largest found in the Village.

are very few examples), the average weight works out at 339 grains. Their average length is $1\frac{2}{3}$ ins., with an average diameter of $\frac{1}{8}$ in. The ends of the bullets are in some cases more pointed than in others; very few of them are attenuated to any extent.¹ For the most part they have a smooth surface and are free from grit. Some of them are imperfectly baked, whilst others are fired so much as to be extremely brittle, but on the whole they are well made and baked to the proper degree.

Judging from the large number of unbaked sling-bullets which have been found in the Village, there can be no doubt that they were manufactured on the spot, and not brought to the Village by an attacking enemy as some people have suggested. No trace of slings has been found. Not only would the bullets have been used in warfare, but also for killing the numerous aquatic birds whose bones have been uncovered in such large numbers.

This subject calls to mind the following passage in Caesar (*De Bello Gallico*, V, 43), having reference to the attack of the Nervii on Cicero's camp²:—"Septimo oppugnationis die maximo coorto vento ferventes fusili ex argilla glandes fundis et fervefacta iacula in casas, quae more Gallico stramentis erant tectae, iacere coeperunt. Hae celeriter ignem comprehenderunt et venti magnitudine in omnem locum castrorum distulerunt."

("On the seventh day of the siege a violent wind blew. They then began to fire red-hot bullets of clay and javelins with burning tow wrapped round them at the huts, which, as is usual among the Gauls, had been thatched with straw. These quickly caught fire and owing to the violence of the wind spread to every part of the camp.")

It is difficult, however, to understand how bullets of clay in a red-hot condition could be handled with a sling; and, even if this were possible, how they could fire thatch after cooling to a large extent in the process of transmission from a fire to a dwelling.

Clay sling-bullets have rarely been found in Britain, except in the south (and particularly in the south-west).

Somerset.—Two sling-bullets of fusiform shape have been found at Cadbury Castle, S. Somerset (Taunton Mus.). That found by Col. Wm. Woodforde has been figured;³ it weighs 447 grains (heavier, with one exception, than any specimen from the Lake-village). The other, less shapely, was found in the excavations conducted there in 1913.⁴

At least half-a-dozen specimens have been collected on Ham Hill, S. Somerset (Taunton Mus.). One, in the W. W. Walter Collection, is a very perfect but small specimen, weighing

1. No. 2, Plate xc, is very long in proportion to the max. diam.; whilst No. 9, of the same plate, most nearly approaches an egg-shaped outline. No. 2 is the most angular in form and in this respect is similar to some of the specimens from Womersley (p. 567).

2. See also Introductory Chapter, Vol. I, 28.

3. *Proc. Som. Arch. Soc.*, LIX, ii, 13, and Plate v, F.

4. *Ibid.*, LIX, ii, 18.

202 grains.¹ This bullet and the first mentioned from Cadbury are so shapely and symmetrical that they almost suggest having been cast in a mould.² Another perfect specimen, weighing 338 grains, was found in a quarry known as "the Rocks," near Bedmore Barn, 1907 (A. V. Cornish Coll.).³ Others were found between 1905 and 1909, the most complete examples weighing 243, 345, 357 (probably 362 when quite perfect), and 432 grains respectively.⁴

The Ham Hill specimens vary in length from $1\frac{1}{2}$ to $1\frac{1}{8}$ ins., and in maximum diameter from $\frac{3}{4}$ to $1\frac{1}{8}$ ins. Their average weight is 320 grains.

Another perfect sling-pellet, Somerset (exact locality unknown), in Taunton Museum, weighs 375 grains.

One fusiform sling-bullet of baked clay was found in Wookey Hole Cavern, and another unbaked.⁵

Wilts and Dorset.—It is somewhat surprising that no specimens of the sling-bullets of baked clay were found by General Pitt-Rivers in the R. B. Villages of Woodcuts, Rotherley, and Woodyates.

There are at least three sling-bullets of Lake-village type from Hod Hill, Dorset, in the British Museum.

In the Blackmore Museum, Salisbury, several sling-bullets are exhibited from Highfield Pits, Salisbury.⁶ There are at least four of baked clay and three or more of chalk. A specimen is also exhibited from Westbury.

An ovoid pellet of clay, weight 370 grains, was found by Pitt-Rivers in Section 2 through the Wansdyke at Brown's Barn (on the old turf line).⁷

Six bullets of the same type were found in pit-dwellings on Beckhampton Down, N. Wilts, 1884.⁸ One was found at Cold Kitchen Hill;⁹ and the midden at Oare produced one specimen.¹⁰ In the excavations at Casterley Camp one of chalk was obtained, and several of baked clay.¹¹ All these are in Devizes Museum.

Another was picked up at "Mother Anthony's Well," near Devizes. Sling-bullets of clay and chalk were also found in Mr. and Mrs. Cunningham's excavations at Lidbury Camp (Autumn, 1914).

Other Parts of Britain.—Outside Somerset and Wiltshire very few of these sling-bullets of baked clay appear to have been found. One was discovered in a prehistoric pit at Peterborough, and has been figured.¹² It is egg-shaped, $1\frac{1}{4}$ ins. long and $\frac{3}{4}$ in. in diameter. Another from Wolvercote, Oxon., is exhibited in the Ashmolean Museum. Another was found in the excavations at Hengistbury Head, Hants.¹³ A large specimen was included with the objects discovered by Mr. Park Harrison at Cissbury in 1877 (Brighton Mus.).

1. *Proc. Som. Arch. Soc.*, XLVIII, ii, 39. Figured in *V.C.H. Somerset*, I, 296, fig. 63, no. 9.

2. In Wilde's *Catalogue* (Stone, p. 18) of the *Museum of the Royal Irish Academy* mention is made of a brass mould for casting oval pellets.

3. *Proc. Som. Arch. Soc.*, LIII, i, 73.

4. *Ibid.*, LI, i, 89; LII, i, 83; LIII, i, 86, 90; LV, i, 101.

5. "Wookey Hole" (1914), 104, and Plate xx, B, no. 27.

6. E. T. Stevens, "Flint Chips," 66.

7. *P.R. Excavations*, III, Plate ccxxii, fig. 7.

8. *Wilts Arch. Mag.*, XXIII, 66; *Cat. Devizes Mus.*, II, 92.

9. *Wilts Arch. Mag.*, XXVII, 287, and fig. 17; *Cat. Devizes Mus.*, II, 87, and Plate xlv, fig. 2.

10. *Wilts Arch. Mag.*, XXXVI, Plate iii, F; *Cat. Devizes Mus.*, II, 98, and Plate xlviii.

11. *Wilts Arch. Mag.*, XXXVIII, 89, 97, 105; *Cat. Devizes Mus.*, II, 104, 112.

12. *Archæologia*, LXII, 335.

13. See *Report on the subject*, *Soc. of Antiq.*, 1915, p. 62, and Plate xxx, fig. 16.

A large number of baked clay sling-bolts were found lying close together, 3 feet below the surface, at Derry's Wood, Womersley, near Guildford, in 1909, "about enough to fill a gallon measure."¹ They are not of the normal type, being somewhat angular in form; their exact date is uncertain. Some of them are now exhibited in the British Museum; others may be seen in the Pitt-Rivers Museum at Oxford, and in the collections at Taunton² and Glastonbury.

In the Fort on Castle Law, Abernethy, Perthshire, two sling-bullets of baked clay were found in association with Late-Celtic remains; they are slightly ovate, $1\frac{3}{8}$ by $1\frac{1}{4}$ ins.³ A much larger discovery of sling-pellets was made in Scotland at the Roman Station at Ardoch, where about 75 specimens were collected, two of which have been figured.⁴ In length they vary from $1\frac{1}{4}$ to $1\frac{3}{4}$ ins., in diameter from $\frac{3}{4}$ to $1\frac{1}{4}$ ins., and in weight from $\frac{3}{4}$ to $1\frac{1}{4}$ ozs.

Foreign Parts (all of baked clay).—A sling-bolt, $4\frac{1}{2}$ centimetres long, and weighing 32 grammes, was found at La Tourelle, Quimper, Brittany, and has been figured.⁵ Several were found at Breteuil, Oise.⁶ Ancient sling-stones have also been found in Sweden.⁷

A sling-bullet was found at Carthage in 1863 by Mr. H. Christy, F.S.A., $1\frac{3}{4}$ ins. long, weight 10z. 157grs.⁸ There is a large Punic bullet from the same locality in the Pitt-Rivers Museum, Oxford.

Terra-cotta examples, as large as a hen's egg, have also been found in Sicily; they bear various figures and inscriptions.⁹

Sling-stones were found in the Cave of Ghar Dalam, Malta; from the illustration of two of them they appear to be of baked clay.⁹

There is a specimen in Bristol Museum, found at Naukratis, Egypt.

An example of fusiform shape, from Nîmes, measures $2\frac{3}{8}$ ins. in length, and weighs 10z. 14dwts. 8grs.¹⁰

Pacific Ocean.—Ovoid sling-stones from New Caledonia are well known, and have often been described.¹¹ There are several in the Pitt-Rivers Museum at Oxford, mostly of the size of those of clay from the Lake-village. Sling-stones from the Pacific, however, vary considerably in size, and specimens in the Oxford collection are exhibited from New Guinea, Goodenough Id., D'Entrecasteaux Ids., Elato Id. (Caroline Group), etc. Those from the Hawaiian Ids. are short and thick, but pointed at the ends.¹²

1. *Surrey Archæol. Collections*, XXII, 199, where four of them are figured.

2. The specimen in Taunton Museum is triangular in cross-section,—the corners of the triangle slightly rounded. It is not quite complete, but its original weight was about 490 grains.

3. *Proc. Soc. Antiq. Scot.*, XXXIII, 33; *Proc. Soc. Antiq. Lond.*, XVIII, 375.

4. *Proc. Soc. Antiq. Scot.*, XXXII, 458; *Proc. Soc. Antiq. Lond.*, XVIII, 372.

5. *Arch. Cambrensis*, 3 ser., XIV, 303; Stevens, "Flint Chips," 66.

6. *Proc. Soc. Antiq. Scot.*, XXXII, 459; *Archæologia*, XLVI, 467.

7. Nilsson, "Stone Age," Plate v, fig. 115. He also illustrates specimens from New Zealand in figs. 116, 117. (See also "Old New Zealand," by a Paheka Maori.)

8. *Proc. Soc. Antiq. Lond.*, 2 ser., II, 300. Small specimens of lead are also found in Sicily. (See Pitt-Rivers Mus., Oxford.)

9. *Man*, 1916, art. 14, p. 19, and Plate B, fig. 4.

10. *Journ. Brit. Arch. Assoc.*, XX, 76.

11. Mr. Fortnum also exhibited at the Society of Antiquaries (pp. 563-4) a stone sling-bullet of the usual elongated ovoid form, weighing 500 grains, used by the natives of New Caledonia.

12. Some of the war hand-stones from Savage Id. (Niue) of native stalagmite and of tridacna shell are larger but of the same general form as the sling-stones, and pointed at the ends (Pitt-Rivers Mus., Oxford).

IV. LOOM-WEIGHTS.

Large weights with perforations have frequently been found in archæological excavations. Although generally composed of baked clay, they are sometimes made from chalk, limestone and flint, in districts where these materials were easily procurable. In the case of flint advantage was no doubt taken of natural perforations.

The typical triangular-shaped loom-weights of baked clay found in the Lake-village are more or less equilateral in plan, having sides varying in length from $3\frac{3}{4}$ to $7\frac{1}{2}$ ins.; the blocks range in thickness from $1\frac{3}{8}$ to $3\frac{3}{4}$ ins. Generally they have three perforations, one across each corner, of which No. 7, Fig. 171, is a specimen. Occasionally they are provided with two perforations (see Nos. 3 and 5, Fig. 171); and three of the complete specimens have only one hole each. As will be seen from the accompanying table the complete specimens vary in weight from $11\frac{1}{2}$ ozs. to 7 lbs. 10 oz.

The roll-shaped clay weights were less commonly found. Sometimes they have one perforation, but more often two (see Nos. 16 and 18, Fig. 172). Their average length is 6 ins., and they vary in diameter from 3 to $4\frac{1}{4}$ ins. The smaller example, which is somewhat damaged, was originally about 8 ozs. in weight, whereas the largest complete specimen weighs 4 lbs. $9\frac{1}{2}$ ozs.

Found in about the same numbers as the roll-shaped weights are the pyramidal blocks of baked clay,¹ of which a typical specimen is illustrated in Fig. 172 (No. 14). They have from one to three perforations, but three are exceptional. Both the complete examples are 6 ins. in height, and the oblong base varies in size from $4\frac{1}{4}$ by $2\frac{1}{2}$ ins. to $6\frac{1}{2}$ by 3 ins. No. 14, Fig. 172, weighs 4 lbs. 9 ozs.

1. In the *Hengistbury Head Report* (1915), p. 64, it is stated that "the truncated pyramid type is commoner both in this country and abroad," but at Glastonbury more specimens of the triangular form were found than of the roll-shaped and pyramidal types put together.

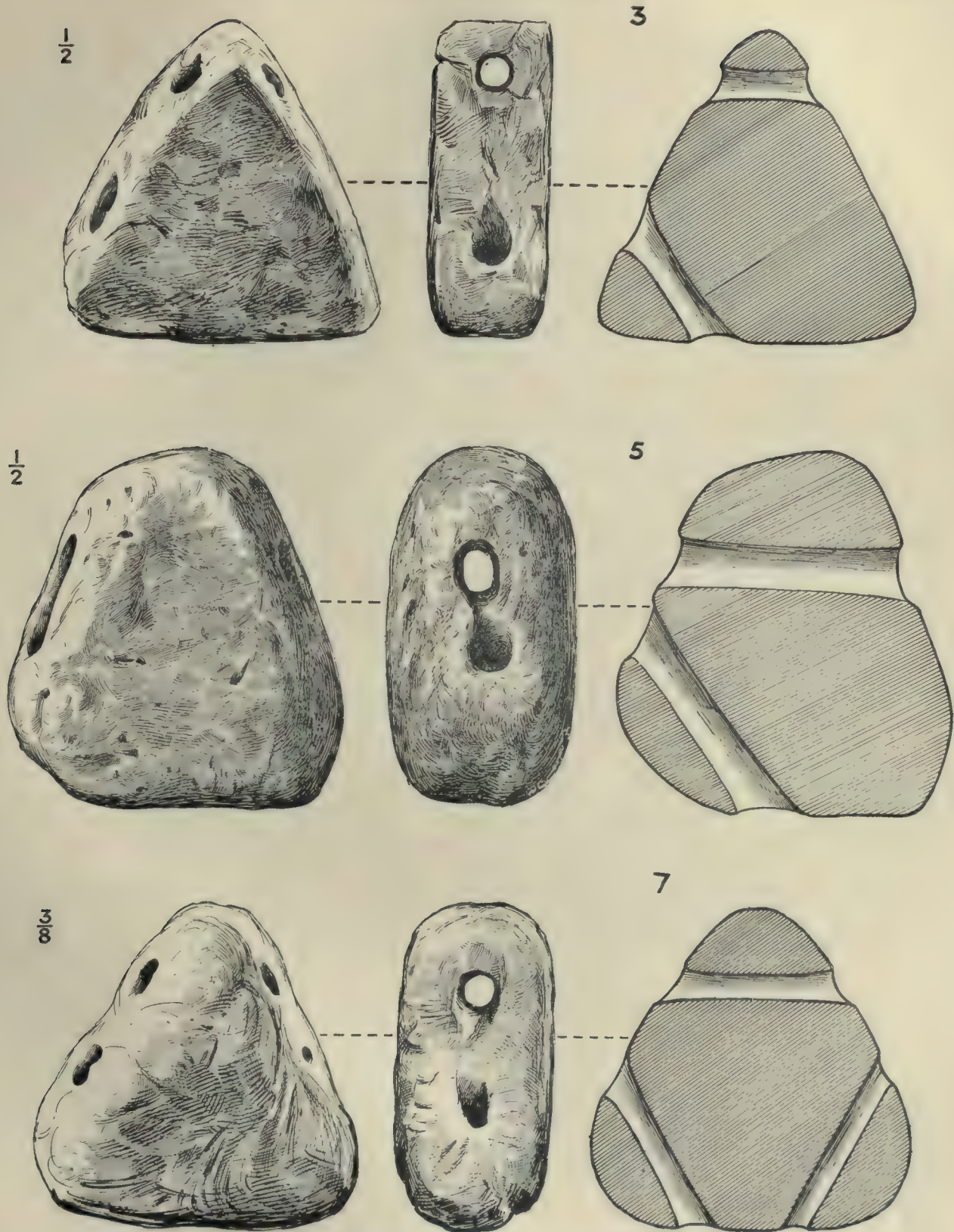


FIG. 171.—TRIANGULAR LOOM-WEIGHTS OF BAKED CLAY, GLASTONBURY LAKE VILLAGE.

J. & D. Frater, Edinburgh, del.

COMPLETE (OR NEARLY COMPLETE) WEIGHTS OF BAKED CLAY.

No.	FORM.	NO. OF PERFORATIONS.	AVERAGE LENGTH OF SIDES.	AVERAGE THICKNESS.	WEIGHT (AVOIRDUPOIS).	LOCALITY.	WHERE FIGURED.
1 (D 69)	Triangular	One	3 $\frac{3}{4}$ ins.	1 $\frac{3}{8}$ ins.	11 $\frac{1}{2}$ ozs.	Mound XXXVII (10 $\frac{1}{4}$ ft. N. of c.p.).	—
2	Ditto	One	4 $\frac{1}{2}$ ins.	1 $\frac{1}{2}$ ins.	14 $\frac{3}{4}$ ozs.	Mound XXXVII	—
3	Ditto	Two	4 $\frac{1}{2}$ ins.	1 $\frac{1}{8}$ ins.	1lb. 3 $\frac{1}{4}$ ozs.	Mound V (s. side).	Fig. 171
4	Ditto	One	5 $\frac{1}{4}$ ins.	2ins.	2lbs. 3ozs.	Mound XXXVII	—
5 ⁴	Ditto	Two	5ins. (base 4 $\frac{1}{2}$ ins.).	2 $\frac{3}{4}$ ins.	2lbs. 3ozs.	Mound LXX (in peat below floors).	Fig. 171
6 ²	Ditto	Three	5 $\frac{1}{4}$ ins.	3ins. (max.)	About 3lbs. 3ozs.	Mound LXX (in peat below floors).	—
7	Ditto	Three	6 $\frac{1}{4}$ ins.	2 $\frac{3}{4}$ ins.	3lbs. 7ozs.	Mound XXXIX	Fig. 171
8	Ditto	Three ¹	6 $\frac{1}{2}$ ins.	2 $\frac{1}{2}$ ins.	3lbs. 12 $\frac{1}{2}$ ozs.	—	—
9 (D 17)	Ditto	Three	6 $\frac{1}{4}$ ins.	3 $\frac{1}{4}$ ins.	3lbs. 14ozs.	Mound XVIII (3ft. s. of c.p.).	—
10 ⁴ (D 67)	Ditto	Three	7 $\frac{1}{2}$ ins.	3 $\frac{3}{4}$ ins.	7lbs. 10z.	Mound LXVI	—
11	Ditto	Three	7 $\frac{1}{2}$ ins.	2ins.	—	Mound LXX	—
12 (D 18)	Ditto	No holes (apparent- ly unfin- ished)	6ins.	—	—	—	—
13	Ditto (with con- cave sides)	Three	5 $\frac{3}{4}$ ins.	3ins.	—	Mound LXX	—
14 (D 29)	Pyramidal	Two	Base, 5 $\frac{1}{2}$ ins. by 2 $\frac{3}{4}$ ins.	6ins. ²	4lbs. 9ozs.	Mound LXII	Fig. 172
15	Ditto	One	Base, 4 $\frac{1}{4}$ ins. by 2 $\frac{1}{2}$ ins.	6ins. ²	—	Mound LXX	—
16 (D 59)	Roll-shaped	Two	5 $\frac{3}{4}$ ins.	3ins. (max.)	2lbs. 3 $\frac{1}{4}$ ozs.	Mound VI (15ft. w.s.w. of c.p.).	Fig. 172
17 (D 29)	Ditto	Two	5 $\frac{1}{2}$ ins.	3 $\frac{1}{2}$ ins. (max.)	2lbs. 7 $\frac{1}{4}$ ozs.	Mound LXII	—
18	Ditto	Two (one double in one half)	6ins.	3 $\frac{1}{4}$ ins. by 4ins.	3lbs. 3 $\frac{1}{4}$ ozs.	In peat between Mounds XI and XVII	Fig. 172
19 (D 29)	Ditto	Two	7ins.	4 $\frac{1}{4}$ ins. (max.)	4lbs. 9 $\frac{1}{2}$ ozs.	Mound LXII	—
20	Ditto	One	5ins.	—	—	Mound LXX	—

The figures with the prefix D (= Baked Clay), in this and the next table, have reference to the Plan Sheets in Vol. I.

1. Near the mouth of the holes the diameter is $\frac{3}{4}$ in. (larger than the average perforations). This specimen is in fine condition.

2. This represents the height of the pyramidal block.

3. In the British Mus.

4. In Taunton Mus.

SOME OF THE INCOMPLETE WEIGHTS OF BAKED CLAY.

No.	FORM.	NO. OF PERFORATIONS TRACEABLE.	WEIGHT OF PART REMAINING.	REMARKS.	LOCALITY.
21 (D 68)	Triangular	Two	1lb. 2½ozs. (1lb. 4ozs.) ¹	One corner wanting.	Mound IV (18ft. w.s.w. of c.p.).
22	Ditto	Two	2lbs. 8ozs.	Pitted on both sides with finger- tip depressions, and holes (aver. diam. ¼in.) apparently made with a stick.	Mound XXXVII
23	Ditto	Two	1lb. 13ozs.	Before being baked one angle appears to have been re- moved.	Mound XXXVII
24	Ditto	Two	—	Fragment of large specimen.	Mound XXXVII
25	Ditto	Two	—	It never had a third hole.	Mound XXXVII
26	Ditto	—	—	About one-third of a large weight.	Mound XXXVII
27	Ditto	Two	1lb. 13¼ozs.	About two-thirds of a large weight.	Mound XXXVII
28	Ditto	Three	—	Fragments of a large weight.	Mound XXXVII
29	Ditto	Two	2lbs. 10½ozs.	About two-thirds of a large weight.	Mound XXXIX
30	Ditto	—	—	Fragments.	Mound XLIV
31	Ditto	—	—	Two pieces, and greater part of one showing two holes.	Trenching w. of Mound LIII
32	Ditto	One	—	Greater part, broken on the line of a perforation through middle of weight; side re- maining, 5½ins.; thickness 3ins.	Mound LXX
33	Ditto	Three	—	Greater part, broken along line of one of the holes; remain- ing side, 6ins.; thickness 2½ins.	Mound LXX
34	Ditto	Three	—	Damaged; isosceles form, sides 5½ins. and 4½ins.; thickness 2½ins.	Mound LXXIII
35	Ditto	Two	—	Sides 6ins.; thickness 2¾ins.	—
36 (D 29)	Pyramidal	Two (at base)	—	Top missing; base 6½ins. by 3ins.	Mound LXII
37 (D 29)	Ditto	Three (see 'Remarks')	—	Large weight, top missing; one perforation across one corner; also two holes near base,— deep, but they do not pierce the entire thickness of the weight.	Mound LXII
38 (D 29)	Ditto	Two (see 'Remarks')	—	One hole penetrates the block; the other partly pierces the weight from both surfaces.	Mound LXII
39	Ditto	Two	—	Incomplete, height 5½ins.; thickness 2¾ins.; lower hole not in middle.	Mound LXX
40	Ditto	One	—	Upper half only; thickness 2¾ins.	Mound LXXI
41	Roll- shaped	One	6¾ozs. (8ozs.) ¹	Not quite complete.	Mound XLIV
42	Ditto	Two	2lbs. 10¼ozs.	Not quite complete.	Mound XLIV.

1. Estimated weight when perfect.

It was not found possible to count the number of baked clay loom-weights actually discovered, for comparatively few of them were complete, and many of them which appeared to be entire when discovered broke into dozens of fragments on removal. Others were imperfectly baked and suffered considerably when exposed for the purpose of drying. Besides the more or less complete specimens, fragments in large numbers were found. Of many of these the original form could not be distinguished, but the triangular shape greatly predominated.

As far as our records go (see the accompanying tables), we are able to state that specimens which could be preserved almost entire were found as follows:—

Triangular, with from one to three perforations.

Three from Mound XXXVII.

Four from Mound LXX.

One each from Mounds V, XVIII,¹ XXXIX, and LXVI.

Two from other mounds (*unrecorded*).

Triangular, incomplete.

Seven from Mound XXXVII.

Two from Mound LXX.

One each from Mounds IV, XXXIX, XLIV, LIII, and LXXIII.

One from another mound (*unrecorded*).

Pyramidal, complete.

One each from Mounds LXII and LXX.

Pyramidal, incomplete.

Three from Mound LXII.

One each from Mounds LXX and LXXI.

Roll-shaped, complete.

Two from Mound LXII.

One each from Mounds VI and LXX; and one found between Mounds XI and XVII.

Roll-shaped, incomplete.

Two from Mound XLIV.

In considering the actual purpose for which these weights were used it should be stated that in Mound XXXVII, in which ten of these baked clay blocks were found, six spindle-whorls, five weaving-combs, five bone needles, and several perforated tarsal bones were also collected (p. 111); these objects point to the manufacture and use of textile fabric. In Mound XLIV, three baked clay weights, three spindle-whorls, and two weaving-combs were found. Mound LXX, which revealed eight more or less complete baked clay weights (triangular, pyramidal and roll-shaped) also produced seven combs; and in Mound LXII, where several complete weights and fragments were collected, no less than six weaving-combs were also found.

1. Other triangular weights were found in this mound (p. 92), but they broke up on removal. Another was found in Mound LXXXIV under the first floor—not included in the tables (*Proc. Som. Arch. Soc.*, LIII, ii, 141).

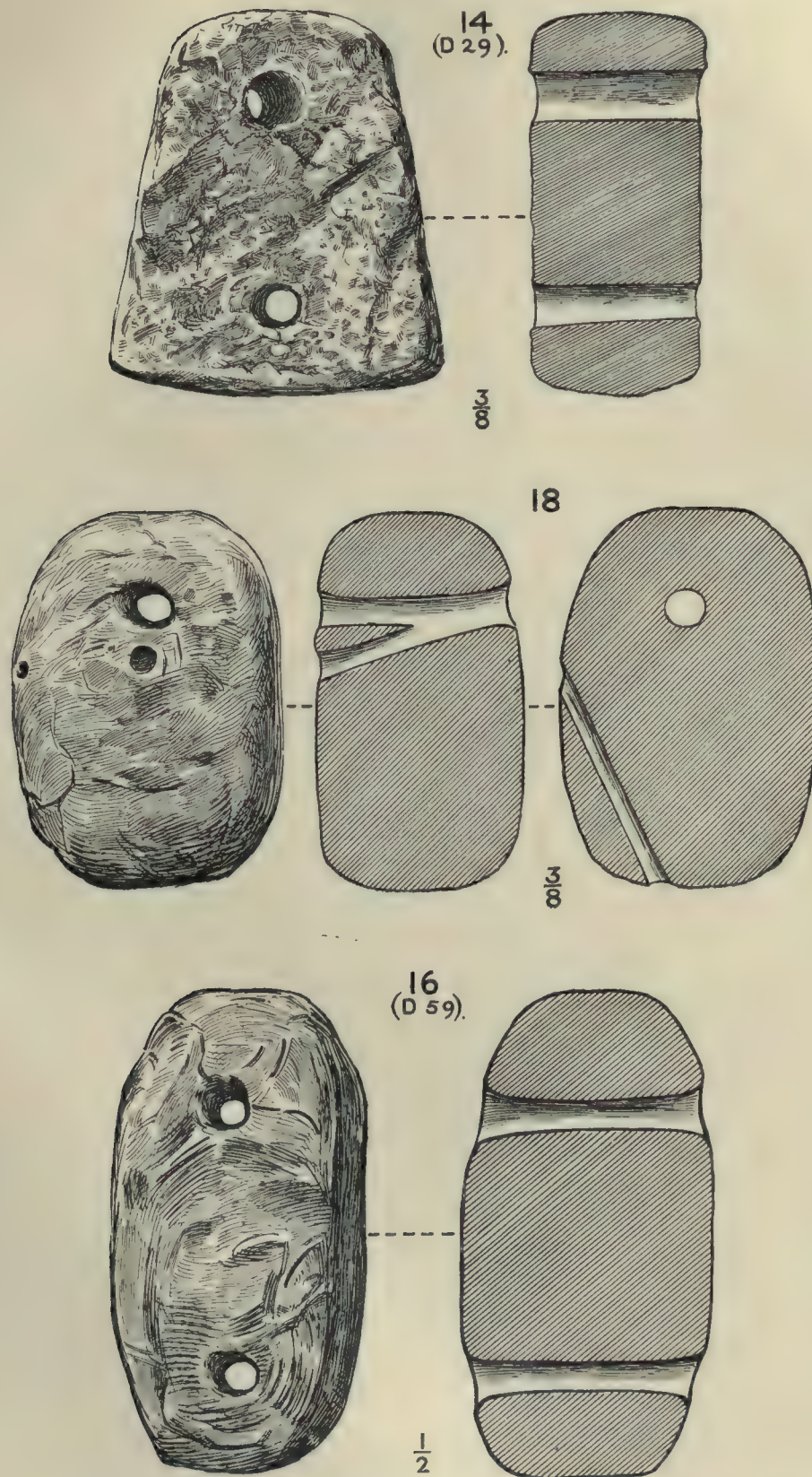


FIG. 172.--BAKED CLAY LOOM-WEIGHTS (NO. 14, PYRAMIDAL; NOS. 16 AND 18, ROLL-SHAPED).
GLASTONBURY LAKE VILLAGE.

J. & D. Frater, Edinburgh, del.

These and similar blocks of clay have sometimes been described as net-sinkers, sheep-hobbles and margins of hearths, but the most generally accepted opinion is that they were used as loom-weights,—attached to the end of warp-threads on a loom to provide the necessary tension to enable the weaver to throw the shuttle in the process of working in the weft—the long-handled weaving-combs being necessary for beating down the weft in the manner shown in Fig. 57 (Vol. I). The connection of these clay weights with the upright loom is seen in Fig. 175 (Chapter on Spindle-whorls).

In discussing the purpose of these weights it will be well to mention the claims of Mr. Wilfrid Airy, M.INST.C.E., published in a paper "On the Ancient Weights of Britain," in the *Proceedings of the Institution of Civil Engineers*.¹ He says that—

"It so happens that throughout the western countries of Europe—in England, France, Spain and Saxony—there are found ancient weights of similar sizes, shapes, and material, usually made of burnt clay, and ranging in weight from $\frac{1}{2}$ to 12lbs. By comparing these weights one with another, they are found to conform very closely with an Avoirdupois standard, *i.e.* that the different weights proceed by simple subdivisions and multiples of our Avoirdupois pound." . . . They are "of certain definite shapes, and evidently constructed according to a generally recognized system."

"The shapes most commonly met with are as follows :—(1) thick triangular slabs ; (2) truncated pyramids and cones ; (3) cylinders ; and (4) rings. These objects are almost always pierced with holes to facilitate lifting or suspension, and were evidently weights for some purpose or another. . . . In some museums they are sometimes labelled. . . . Loom-weights. . . . Now, loom-weights are usually understood to have been the weights attached to single threads for the purpose of keeping them stretched and parallel : and many of the burnt clay weights would be far too heavy for this purpose. Moreover, it might be expected that for the same purpose they would be pretty nearly all of the same weight, whereas they range from $\frac{1}{2}$ to 12lbs."

Mr. Airy goes on to say that he regards them as the trade weights of the Late-Celtic period,—“a supposition which would account both for the range of the weights and for the uniformity of their shapes.” He informs us that, when allowance was made for loss by wear, wastage and chipping, the weights appeared to conform to an Avoirdupois standard, with subdivisions of $\frac{1}{4}$, $\frac{1}{2}$ and $\frac{3}{4}$ lb., and he regards them as proof that the Avoirdupois system was that in use in the Prehistoric Iron Age. He has made his deductions from eighty-two specimens of various forms exhibited in twenty-three museums (all in England, except Edinburgh). Among these examples Mr. Airy finds twenty-six different units ! According to his table there are single specimens of the following weights (lbs.) :— $\frac{1}{2}$, $\frac{3}{4}$, $3\frac{3}{4}$, $4\frac{3}{4}$, $5\frac{1}{4}$, 6, $6\frac{1}{4}$, $7\frac{1}{4}$, $9\frac{1}{4}$, 10 and 12 ; two each of $1\frac{1}{4}$, 5 and $5\frac{3}{4}$; three each of $2\frac{3}{4}$ and $4\frac{1}{2}$; four each of 1, $2\frac{1}{4}$, $3\frac{1}{4}$ and 4 ; five each of $2\frac{1}{2}$ and $3\frac{1}{2}$; six of 2 ; seven of $1\frac{3}{4}$; nine of 3 ; and eleven of $1\frac{1}{2}$.

1. Vol. CXCI, Session 1912-13, Part i.

Had the values of these weights been confined to fewer units, Mr. Airy's suggestions would be more convincing. We will not however attempt to pronounce judgment definitely, until further evidence on the subject is obtainable; but from the number found in the Lake-village and their general distribution it is difficult to conjecture what kind of merchandise required weighing in such an isolated community.

Baked clay loom-weights of the types we have been describing are more frequently found in the south and east of England than in other parts of Great Britain. The following notes may be useful to the student of ancient clay weights.

Somerset.—There are exhibited in Taunton Museum four triangular loom-weights of similar form to those found in Glastonbury Lake-village, and having holes across each corner, which were found associated with red Samian pottery and other Roman remains at North Perrott Manor, near Crewkerne, 1878.¹ One of the specimens is complete and weighs 3lbs. 15½ozs. Its thickness is 2½ins., and its sides measures 6½ins. in length.

The same museum also contains some clay loom-weights from the Meare Lake-village, which have not yet been described.

One or two fragments of similar loom-weights have been found at "Cadbury Castle," South Somerset,² where other objects of the Late-Celtic period have been obtained.

Ham Hill, South Somerset, has also produced a few specimens (Taunton Mus.). A fragment was found on Site C,³ and two other pieces (one large) at "Ham Turn," 1907.⁴ Another nearly perfect triangular weight (sides about 5½ins., thickness 2½ins.), with rounded corners and pierced with two holes, was found on the Hill towards the end of last century.⁵

At Wookey Hole fragments of "clay weights of broad pyramidal form have occurred," and one or two pieces of perforated stone.⁶

There were in the collection of the late Mr. Wm. Stradling at Chilton-super-Polden five perforated discs of burnt clay which may have been weights. They were found "near the ancient Roman road leading from Puriton to Downend."⁷

Dorset.—The triangular specimen having three holes across the corners found in the R. B. V. Woodcuts by General Pitt-Rivers (Farnham Mus., N. Dorset) was illustrated in a plate with remains of daub and wattlework, and does not appear to have been recognized as a weight of the kind described in this chapter.⁸

Pitt-Rivers found another in Pit 4, west of the "Angle Ditch," Handley Down (depth 2.5ft.), which has not been figured or described (Farnham Mus.).

Portions of two triangular "bricks" (about 2½ins. thick) were found at Maiden Castle,

1. *Proc. Som. Arch. Soc.*, XXVI, i, 86. The weights were found in the same excavation as the Roman pottery, but there is no record that the weights and the pottery, etc., came from the same layer. See also *V.C.H. Somerset*, I, 366, where mention is made of "triangular bricks (? for kiln)."

2. *Proc. Som. Arch. Soc.*, LIX, ii, 11; *V.C.H. Somerset*, I, 203.

3. *Proc. Som. Arch. Soc.*, LVII, i, 114.

4. *Ibid.*, LIII, i, 86.

5. *Ibid.*, XLVIII, ii, 40.

6. Balch's "Wookey Hole," 104, III, 114.

7. Stradling's "Description of the Priory of Chilton-super-Polden" (1839), p. 8, where the objects are wrongly described as "balls." They were seen by Dr. Arthur Bulleid about 1884.

8. *P.R. Excavations*, I, 147, and Plate lii, fig. 8.

Dorchester. They are described as "light drab-coloured, compact clay, well fired, both having a perforation from side to side, near the points."¹

In the Dorset County Museum there is a loom-weight of chalk of an irregular oval form, found at Maiden Castle in 1882; it has a single perforation and weighs about 3lbs. There are other weights in the museum, weighing 10, 7½, and 4lbs.; the former is 10ins. in height and 4ins. thick, 8ins. at base and 2½ins. at top; it is of stone and perforated; found on the site of Roman pottery-works at Norden, near Corfe Castle.

Four loom-weights, made of hard blocks of chalk, were found in a pit on Hod Hill.²

There is a triangular loom-weight, probably from Dorset, in the British Museum; also another, unknown locality.

Wilts.—In the *Gentleman's Magazine* of 1831 (p. 500)³ we read that "on all sides of the hill on which the town (Malmesbury) stands is daily discovered a stratum of red earth intermixed with stones, bearing marks of the action of fire. . . . In it from time to time have been discovered fragments of badly burned bricks. In a recent excavation . . . were discovered considerable quantities of these bricks . . . very much decayed. . . . The bricks were triangular and perforated, perhaps for the purpose of fastening, by means of pieces of wood, one brick to the other, in order to avoid the use of cement; the sides of the triangle are about 6 inches, the base 5½ inches, and the thickness 3½ inches." The place where they were found is known as "the King's Wall."

Both the triangular and pyramidal forms of loom-weights were found at Westbury (Devizes Mus.). One of clay, of the triangular form and having two holes, has been figured; also one of pyramidal shape composed of chalk, and another of clay, each having one hole.⁴

Devizes Museum also contains loom-weights from Beckhampton (one, chalk), Wilsford (two, chalk), and Oldbury Camp (three, chalk, etc.), Oare (one, baked clay, ? loom-weight), Casterley Camp (chalk, and baked clay—triangular, fragmentary).⁵

Loom-weights of clay and chalk were found in the Highfield Pits (Salisbury Mus.).⁶ The clay pieces are not of triangular form. The oblong lumps of chalk are drilled at one end and show wear caused by the friction of cords used for suspension.

A number of chalk loom-weights are said to have been found at Kingston Deverill;⁷ others at Swindon.⁸

Other specimens were found by Pitt-Rivers on Winkelbury Hill, one of which is figured.⁹

Hampshire.—Loom-weights of the triangular and pyramidal forms were found in the excavations at Hengistbury Head, 1911–12.¹⁰

1. *Journ. Brit. Arch. Assoc.*, XXVIII, 41; *Archæologia*, L, 422 (where "Marden" should read "Maiden").

2. Prof. Boyd Dawkins, *Arch. Journ.*, LVII, 59. Hod has produced one or more triangular loom-weights of terra-cotta, according to *V.C.H. Somerset*, I, 196.

3. Also *Archæologia*, L, 422.

4. *Wilts Arch. Mag.*, XXXVI, 472, Plate ix, figs. 3–5; and *Cat. Devizes Mus.*, pt. ii, p. 85, and Plate xl, figs. 3–5.

5. See *Cat. Devizes Mus.*, pt. ii, 1911; and *Wilts Arch. Mag.*, XXXVIII, 78, 89, 105.

6. Stevens, "Flint Chips," 67; *Wilts Arch. Mag.*, XXXVIII, 317. The Blackmore Museum, Salisbury, also has a portion of a loom-weight from Shrewton.

7. *Wilts Arch. Mag.*, XXVII, 176; XXXVIII, 211.

8. *Ibid.*, XXXVIII, 44.

9. *P.R. Excavations*, II, 244, 246, 249, and Plate cxlvii, fig. 25.

10. *Proc. Soc. Antiq. Lond.*, XXVI, 212; *Report on the Excavations*, J. P. Bushe-Fox, 1911, p. 64, and Plate xxxi, figs. 10–12.

Sussex.—Col. Lane-Fox found seven loom-weights of chalk together at the bottom of one of the pits at Mount Caburn Camp (Farnham Mus., N. Dorset),¹ and a similar one was found in one of the smaller pits at Cissbury.²

Brighton Museum contains a triangular weight of the typical shape found in a pit in a market garden in White Hawk Valley, Kemp Town, Brighton.³ The sides are 6ins. long, and the weight about 2½lbs.; there is a single perforation across each corner.

The same museum also contains a small baked clay weight of conical form, having a perforation near the top (weight about ½lb.). It was found with Roman pottery in a gravel pit near the Devil's Dyke, near Brighton.

There is a large piece of baked clay in Lewes Museum with a perforation, which may have been a loom-weight; it was found in the excavations at Pevensey.

Surrey.—Loom-weights (also described as net-sinkers), of "brick," appear to have been found at Fetcham, near Leatherhead.⁴

Portions of loom-weights were found on Leigh Hill, Cobham, consisting of thick triangles of baked clay, with holes pierced across each of the angles. Two sizes are represented, (1) with sides 9ins. (thickness 3½ins.), and (2) sides 6½ins. (thickness 2½ins.).⁵

A baked clay pyramidal block, 5½ins. in height, and similar to the unpierced specimen from Lakenheath (p. 578), was found on Coombe Estate, near Kingston Hill (Brit. Mus.).⁶

A stone loom-weight of pyramidal form, drilled at the upper end and worn near the hole, from suspension, was found in the Thames off Battersea.⁷ Its weight is 14oz. 5dwts. 10grs.

Kent.—"In digging for gravel at Bigbury (Bigberry) Hill, about two miles from Canterbury, at a distance of 7 feet from the surface . . . the labourers came upon some iron-work much broken. It had formed portions of rings, rods, hooks, etc.; and with these were some curious triangular bricks, very imperfectly burnt, which formed a circle, their apices being apparently united at one time, as if to keep them close together by a cord, these holes being bored through each brick to admit it." Pieces of an urn were also found, and a flint arrow-head. Mr. Syer Cuming regarded the bulk of the remains as "appertaining to a Roman fire-hearth and its culinary furniture. . . . The triangular bricks which formed the circular hearth are, however, of unusual character, apparently being made of ill-burnt loam, which may be almost crumbled between the fingers. The bricks measure about 6¼ inches on either side, and are 3 inches in thickness; and the three holes in each are ½ inch in diameter."⁸

From the above it is seen that the triangular blocks of baked clay were regarded as the margin of a circular hearth. There is no evidence that the "bricks" are Roman, and there is no reason why the whole "find" should not be of the Late-Celtic period.

In the Late-Celtic village near Dumpton Gap, Broadstairs, a chalk loom-weight was found and another of flint; also the upper portions of two others of baked clay. All of them had single perforations.⁹

1. *Archæologia*, XLVI, 468, 493. One of them, weighing 3lbs. 10oz., is figured in Plate xxiv, fig. 28.

2. *Journ. Anthropol. Inst.*, VII, 425, and Plate xi, fig. 15.

3. A fibula, of La Tène I type, came from the same area, but not from the same hole (Brighton Mus.).

4. *Proc. Soc. Antiq. Lond.*, XVIII, 257; *Surrey Archæol. Collections*, XX, 121.

5. *Surrey Archæol. Collections*, XXI, 194-5; XXII, 143-4.

6. *Proc. Soc. Antiq. Lond.*, 1 ser., IV, 171; and *Proc. Suffolk Inst. of Archæology*, XIV, 81.

7. Figured in *Journ. Brit. Arch. Assoc.*, XIV, 327, Plate xxiii, fig. 3.

8. *Journ. Brit. Arch. Assoc.*, XVIII, 272; *Archæologia*, L, 422.

9. *Archæologia*, LXI, 429, 430, and Fig. 2; *Arch. Cantiana*, XXX, 310, and plate.

There are several baked clay weights in Canterbury Museum, but none of the triangular form. The locality of the specimens is not known, with one exception, viz. a weight of pyramidal form with one perforation found at Higham, 1902.

In Maidstone Museum there are some baked clay weights of other forms than triangular, which were found at Aylesford (2), Plaxtol (1), and Preston-next-Wingham (1).

Essex.—A triangular loom-weight found at Shoebury in 1897 is exhibited in Colchester Museum.

Suffolk.—In the British Museum there are two baked clay weights of pyramidal form and of quadrangular cross-section from Lakenheath, one of which is perforated near the upper or smaller end,¹ the other is not pierced through, but has "pinched" depressions in the same position.

These are compared with a pyramidal block of baked "pug," unpierced, which the writer and Mr. W. M. Tapp found in excavating an earthwork near Butley, Suffolk, in 1910, in association with mediæval pottery.²

Norfolk.—A triangular weight of baked clay having two perforations was found at Brooke (Brit. Mus.). It has been figured.³

Lincolnshire.—A weight of baked clay of triangular form (isosceles), damaged at two of the corners, was found in North Lincolnshire (Hull Mus.). When complete it had a perforation across two of the three angles.

Cambridgeshire.—A triangular loom-weight, found at Abington Pigotts, in 1885, is exhibited in Northampton Museum.⁴

Northamptonshire.—The baked clay rings found at Desborough are regarded as loom-weights from the fact that some are worn as if by the friction of a cord on the inner side. In the British Museum are specimens so worn from Leadenhall Street, London; Grantchester, Cambs., and Macclesfield, Cheshire.⁵

Mr. E. St. F. Moore exhibited at the Society of Antiquaries on May 27th, 1886, a triangular baked clay loom-weight with a hole piercing each angle, found by him, with a number of querns, fibulæ and rude pottery, in 1885, at the "Dane's Camp," near Northampton.⁶ This no doubt refers to Hunsbury Camp.

Sir Henry Dryden's paper⁷ on Hunsbury Camp records the discovery of about twenty-five of these "triangular bricks." "Some have been well baked, but others only so slightly baked that they had relapsed into a soft clay state. They are all alike, rudely made, about 6½ ins. on each side, and 2½ ins. thick, and all have three holes through them of about ¾ in. diameter. All show the effect of considerable rubbing on the two principal faces and on the edges." They are exhibited in Northampton Museum.

Buckinghamshire.—A triangular weight of clay (imperfectly baked) of the typical form was found near Hanslope (Aylesbury Mus.). Its weight is about 2½ lbs., but nearly one-quarter of the block is now missing. No complete side remains; average thickness 3½ ins. It certainly had two perforations, but one corner is too much damaged for it to be possible to say whether a third hole existed.

Oxfordshire.—In the Ashmolean Museum there are six large rings of baked clay found on

1. This specimen is figured in *E.I.A. Guide, B.M.* (1905), 140.

2. *Proc. Suffolk Inst. of Archaeology*, XIV, 81, and illustration.

3. *E.I.A. Guide, B.M.* (1905), 139.

4. *Reports, Assoc. Architect. Socs.*, XVIII, 59.

5. Another is figured by Artis in *Durobrivæ*, Plate xxix, fig. 6.

6. *Proc. Soc. Antiq. Lond.*, XI, 175.

7. *Reports, Assoc. Architect. Socs.*, XVIII, 58, and Plate v, fig. 3.

Headington Hill, which are, however, probably not loom-weights. The same museum contains one of the typical triangular weights with three holes, but the locality is unknown.

Scotland.—There are in Edinburgh Museum two clay loom-weights, averaging 4ins. in height, found at Ravensby, in the parish of Barry, Forfarshire. Two other clay loom-weights from Montblair, Banffshire, are also exhibited in Edinburgh Museum.¹

Foreign Parts.—Dr. R. Munro, in describing a terp-mound at Aalzum, North Friesland, says that in the Museum of Leeuwarden there are "some curious clay objects, triangularly-shaped and flat, perforated with three holes, one at each angle—sometimes these holes are perpendicular to its surface and sometimes parallel to it."²

Triangular loom-weights found presumably in Holland were exhibited in Namur and Leyden Museums, that in the former being found in a camp at Pry.

In the above paragraphs an attempt has been made to bring together the records of triangular weights of clay, rather than to mention weights of other forms and materials. Other weights of baked clay, etc., may be seen in several English museums, including Cambridge, Colchester, Leicester, London (Guildhall), Reading, Rochester, Salisbury, and Worcester.

V. BAKED CLAY CONNECTED WITH THE STRUCTURE OF THE HUTS.

When a dwelling was burnt the clay daub covering the wood walls became hard-baked leaving impressions of the wattlework and less frequently of timber, and marks of crevices and holes. There was no evidence of a general conflagration of the whole or even of a large section of the Village at one time, but the occasional destruction of one or more dwellings by fire was not an uncommon occurrence.

The total destruction of a house did not always take place, for in two or more instances the charred ends of the wall-posts and the accompanying layer of baked clay rubble was only traceable along one-half to two-thirds of the circumference of the hut; this may be accounted for probably by the way the wind was blowing at the time of the conflagration. In other instances the walls were entirely destroyed. This was undoubtedly the case in one of the dwellings erected on Mounds LXII and XXXVIII.

The baked clay rubble was usually found in a layer from 2 to 4 feet wide following the line of the wall-posts, but occasionally it was scattered over a section of the dwelling-floor giving the impression that part of the wall had collapsed and fallen flat.

1. All four are figured in *Proc. Soc. Antiq. Scot.*, IX, 154, 175, 176, 557, 558; and those from Ravensby also in *Cat. Nat. Mus. Edinburgh* (1892), p. 85. In the same collection is a smaller but similar loom-weight to those from Ravensby, found at Robenhausen (Swiss Lake Dwellings).

2. *Proc. Soc. Antiq. Scot.*, XXIII, 104.

The baked clay included in this section may be considered under the following headings :—

- I. Fragments bearing impressions of wattle. These marks were of various

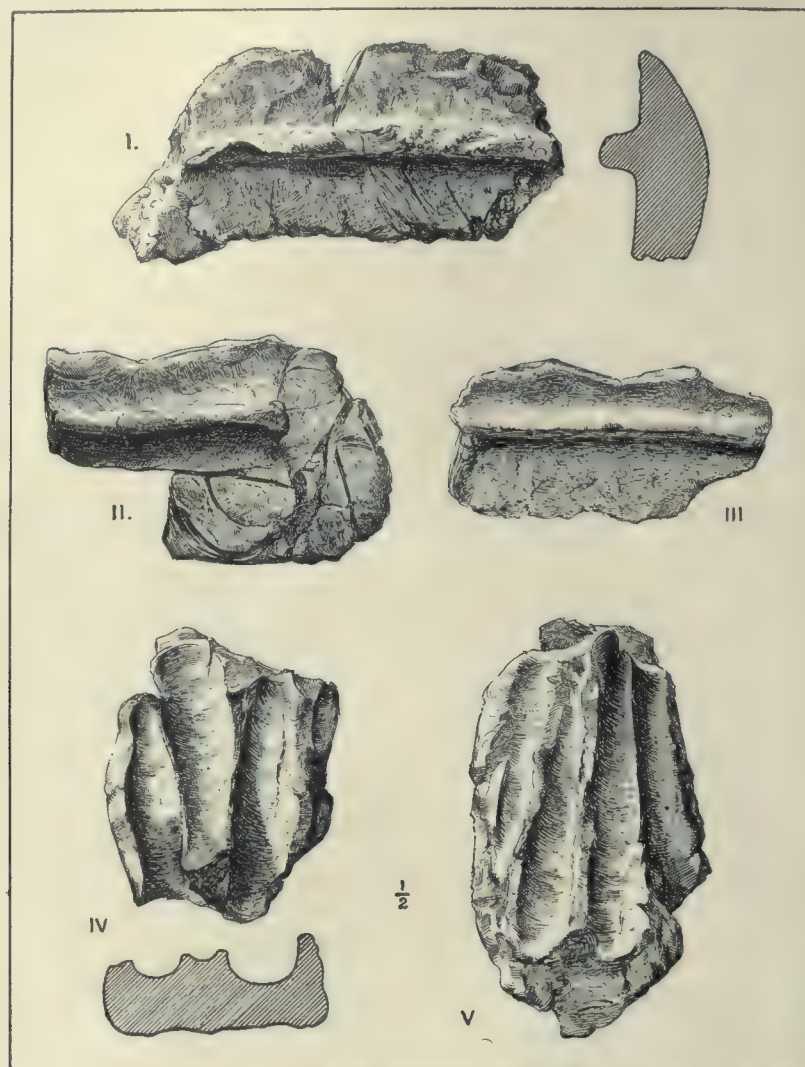


FIG. 173.—BAKED CLAY, GLASTONBURY LAKE VILLAGE.
I, II, III, WITH CREVICE-MARKS. IV, V, WITH IMPRESSIONS OF WATTLE.
J. & D. Frater, Edinburgh, del.

sizes, and examples of large and small wattles may be seen in Fig. 173, IV and V, and Fig. 174, III and IV.

2. Fragments bearing timber and crevice-marks. Some of the former were evidently the rounded impressions of wall-posts, and the latter were pieces of clay that filled the spaces between oak planks, Fig. 173, I, II and III.

3. Large blocks of nondescript shape, probably pieces of the clay daub placed at the foot of the wall.

4. Various fragments used as plugs and showing the shape of holes. Two examples, D 79 and D 80, are figured in Plate XC (see also p. 560).

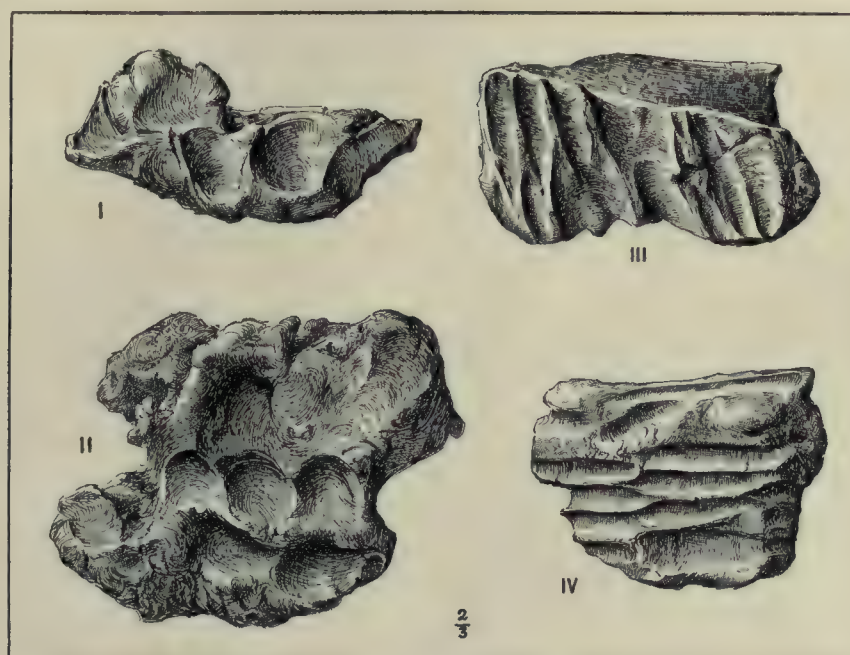


FIG. 174.—BAKED CLAY, GLASTONBURY LAKE VILLAGE.
I, II, DAUB SHOWING IMPRINT OF FINGERS. III, IV, DAUB BEARING THE IMPRESSIONS OF WATTLE.
J. & D. Frater, Edinburgh, del.

5. Pieces of clay daub showing the imprints of fingers. Examples of this may be seen in Fig. 174, I and II.

Similar evidence of wattle and daub construction has been found elsewhere, including the R. B. V. of Woodcuts,¹ the site of the Roman town of Wroxeter,² and the excavations on Traprain Law, Prestonkirk, N.B.³

1. P.R. *Excavations*, I, Plate lii.

2. Bushe-Fox, *Excavations at Wroxeter*, in 1912, Plate v, fig. 1.

3. *Proc. Soc. Antiq. Scot.*, XLIX, 155.

CHAPTER XIX.

SPINDLE-WHORLS.

By H. ST. GEORGE GRAY.

THERE is ample evidence of the great antiquity and wide diffusion of the art of spinning—perhaps the oldest industrial art of which we have knowledge. The simple spinning appliances which were used in prehistoric times continued to be used by civilized peoples till comparatively recent times ; but since the middle of the eighteenth century, owing to the inventions of Paul, Arkwright, Hargreaves and Crompton, human ingenuity has developed a whole range of mechanical machines of great productive capacity and intricate workmanship.

“ The primitive thread-making implement consisted of a wooden spindle, from 9 to 15ins. long, which was rounded and tapered at both extremities. Near the top was usually a notch in which the yarn was caught while undergoing the operation of twisting, and lower down a whorl, or wharve, composed of a perforated disk of clay, stone, wood, or other material, was secured to give momentum and steadiness to a rotating spindle. Long fibres were commonly attached to a distaff of wood, which was held under the left arm of the operator, but short fibres were spun from carded rolls. After attaching some twisted fibres to the spindle, a rotatory motion was given to the latter either by rolling it by hand against one thigh, or by twirling it between the fingers and thumb of the right hand, after which the fibres were drawn out in a uniform strand by both hands and converted into yarn. When the thread was of sufficient strength, the spindle was suspended by it until a full stretch had been drawn and twisted, after which that portion was wound upon the body of the spindle, and the operation continued until the spindle was filled. The quantity thus rolled up gives the name to a now definite measure of linen yarn, namely ‘ the spindle,’ or 14,400 yards. Simple as was this primitive apparatus, a dexterous spinner could produce yarn of an evenness, strength and delicacy such as has scarcely been exceeded by elaborate modern appliances.”¹

The distaff, it is almost unnecessary to say, was a staff with a notched head on which the prepared material was wound, and from which the spinner fed the

1. *Encyclopædia Britannica*, Cambridge, 1911, xxv, p. 685, art. T. W. Fox,

spindle as required. The distaff, having the "lint" or "tow" loosely wound round its head, was probably fixed in the girdle of the spinner, projecting upwards under the left arm, freedom being given to both hands in manipulating the thread.

The illustration, Fig. 175, taken from the *Early Iron Age Guide, British Museum*, 1905, p. 139, shows a distaff leaning against an upright loom; from the distaff the spindle hangs by a thread. The illustration also shows a number of loom-weights hung on the ends of the warp-threads to provide the necessary tension. Those found in the Lake-village are of baked clay, and are figured and described in Chapter XVIII, pp. 568-575.

Women commonly used the spindle and distaff in certain parts of Scotland well into the nineteenth century. Dr. J. A. Smith saw these implements used in Skye in 1857; and many other instances could be quoted.¹ Dr. Arthur Mitchell, who wrote a chapter on "The Spindle and Whorl,"² informs us that in 1864 he visited several houses in the Island of Fetlar in Shetland, and found both soft stone and clay spindle-whorls in use in conjunction with the wooden spindle. Dr. Mitchell goes on to say that the spindle and whorl might still (in 1880) be seen in Shetland, Orkney and the Hebrides; in the counties of Ross, Sutherland and Inverness, and in the district of Galloway. At Daviot in Inverness-shire in 1866 he found a potato serving the purpose of a whorl. A certain woman had used potatoes in this way for a quarter of a century, and yet she lived only a couple of hours' drive from a spinning-mill and tweed factory. The whorls excavated in the Hebrides are known as "Adder Stones." They were evidently treated with superstitious respect and care!

Although wooden objects were well preserved in many parts of the Lake-village, no fragment has been found that can definitely be described as a spindle.³ The presence of spindle-whorls in such numbers undoubtedly implies that the women in the Village were diligent workers with the spindle and distaff, and

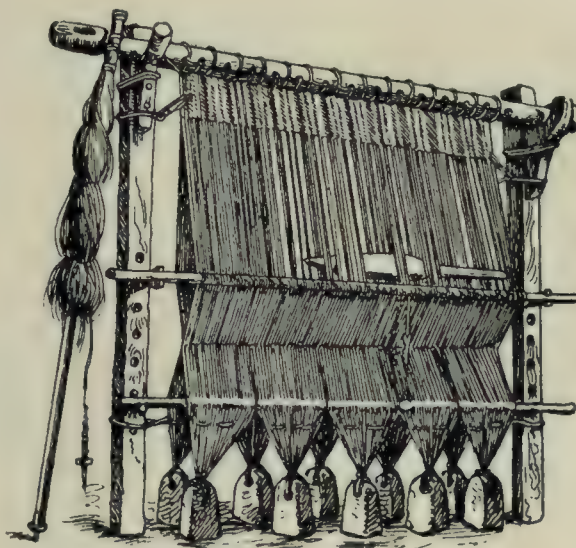


FIG. 175.—PRIMITIVE LOOM, WITH WEIGHTS, DISTAFF, AND SPINDLE.

(Copied from the *Early Iron Age Guide, British Museum*, 1905, p. 139).

1. *Proc. Soc. Antiq. Scot.*, IX, 548.

2. "The Past in the Present: What is Civilisation?" (1880).

3. Ancient wooden spindles, owing to their perishable nature, are rarely found in excavations.

also affords *prima facie* evidence that they made cloth as well as spun yarn. The conditions and chemical properties of the Lake-village site, however, have not been favourable with regard to the preservation of any textile fabric or spun thread; but we have found in the two Lake-villages (Glastonbury and Meare) more weaving-combs than have been discovered in all the other Late-Celtic sites so far excavated in Great Britain. Loom-weights, bobbins, and small needles, have also been commonly found, besides worked timber—probably the framework of at least one loom (Chapter IX).

We shall not attempt to give a list of references to spindle-whorls of the Late-Celtic period, but it might be mentioned that Taunton Museum contains a good collection of whorls from Ham Hill, S. Somerset. Whorls made from heads of animal bones are not very frequently found; there is, however, a specimen from Worlebury Camp in Taunton Museum.¹ A similar specimen was found by Mr. Curle at Newstead.² The same type has been found in London (Guildhall Mus.).³ This form of spindle-whorl, imitated in baked clay, was found in association with Late-Celtic remains in a small cave a little south of the mouth of Gough's Cavern, Cheddar, 1910. At Wookey Hole a whorl formed from the head of a femur was found; also one of similar form in clay.⁴

The spindle-whorls⁵ found in the Lake-village are numerous and consist of the following materials:—Stone (chiefly lias and sandstone), chalk (?), lead, tin, baked clay, pottery, bone, antler, Kimmeridge shale,⁶ a grey shale (p. 596), and fossil ammonites. This chapter not only includes complete spindle-whorls, but also discs of stone, some no doubt whorls in process of manufacture.

Six perforated discs of tin and three of lead⁷ (L 13, 14, 19, 20, 24, 28, 29, 39, 44) found in the Village have already been described in Vol. I (p. 244, and pp. 250–252). Six of them are figured in Plate XLV, and another, L 39, in Fig. 140. It is improbable that all of them were used as spindle-whorls.

The Lake-village whorls were found in all degrees of rudeness and finish, and their form differs considerably. It is rather surprising that ornamentation is almost entirely lacking. Indeed it is questionable if any specimens can be said to bear any traces of ornament except W 30 (Plate XCI), a lias whorl—the mouth

1. "Worlebury," by C. W. Dymond, 2nd edit., Plate x, fig. 10.

2. "A Roman Frontier Post," by J. Curle, Plate lxviii, fig. 12.

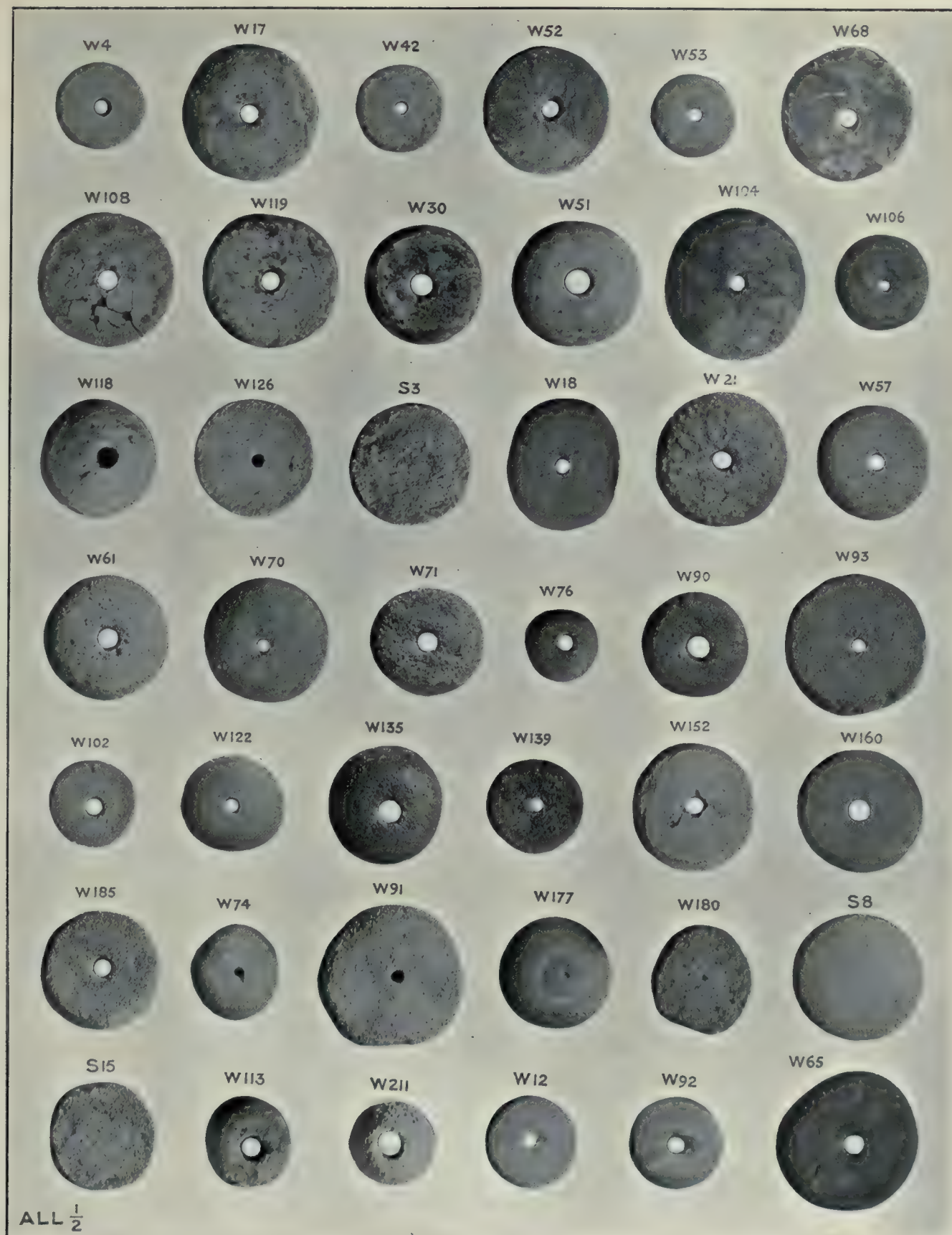
3. *Cat. Guildhall Mus.*, 1903, Plate xxix.

4. "Wookey Hole" (1914), p. 111, and Plate xxiii, A, figs. 4, 5.

5. For brevity "whorl" is sometimes used for "spindle-whorl."

6. The only whorl of Kimmeridge shale, K 21, is described in Vol. I, p. 264, and illustrated in Fig. 54. Three whorls of shale were found in Wookey Hole, two of the Late-Celtic period, one Roman, illustrated in Mr. Balch's book on the Cavern, Plate xxvii, A, figs. 4, 6, 9.

7. The weight of these is given on p. 247. A large number of spindle-whorls of lead were found in the Roman lead-workings at Charterhouse-on-Mendip (Taunton Mus.).



SPINDLE-WHORLS OF STONE (CHIEFLY OF LIAS AND SANDSTONE),
GLASTONBURY LAKE VILLAGE.

From Photographs by Mr. H. St. George Gray.

of the hole on both sides scored with radiating notches,—the whorl, W 184 (Fig. 176), made from the ornamented base of an earthenware pot, and the sandstone whorl, W 86 (Plate LXVIII), which has four notches on the edge.



FIG. 176.—SPINDLE-WHORLS, GLASTONBURY LAKE VILLAGE.
W 81, grey shale; W 174, W 176, lias; W 175, W 183, sandstone; W 184, pottery.
From Drawings by Mr. E. Sprankling.

The Lake-village whorls have been classified in fourteen Tables as follows:—

I.	Flat Spindle-whorls of Lias stone, of oblong cross-section .	48
II.	Flat Spindle-whorls of Lias stone, with decidedly rounded edges .	15
III.	Whorls of Lias, with incomplete holes	2
IV.	Flat Discs of Lias, not perforated	5
V.	Spindle-whorls of other stone, chiefly Sandstone	53
VI.	Whorls of Sandstone, with incomplete holes	12
VII.	Discs of Sandstone, without any indication of drilling	17
VIII.	Stone Whorls, of globular form	5
IX.	Spindle-whorls, of grey Shale	10
X.	Ammonites with central holes, probably used as Spindle-whorls .	3
XI.	Spindle-whorls of Baked Clay	42
XII.	Spindle-whorls formed from flat pieces of Pottery	4
XIII.	Spindle-whorls of Bone and Antler	3
XIV.	Spindle-whorls made from the Heads of Animal Bones	13
Total .		232

Two hundred and fourteen specimens bear the prefix W (= Spindle-whorls), but three of them, viz., W 44 and W 45 (two large perforated discs of baked clay) and W 165 (a ball, partially perforated), have been included in Chapter XVIII (Objects of Baked Clay).

The above total, 232, also includes twenty-one objects with the prefix S (= Stone Objects). These are discs, sometimes plain, sometimes in the initial stages of drilling,—partly formed as spindle-whorls and never completed.

In about one-third of the mounds no spindle-whorls were found; otherwise they were fairly evenly distributed in the various quarters of the Village. Over forty were found in the extreme south of the Village, and thirty-one in the area in the north covered by Mounds LXII, LXIII, LXIV and LXV.

MOUNDS WHICH PRODUCED FIVE OR MORE SPINDLE-WHORLS,
AND WHORLS IN PROCESS OF FORMATION.

MOUND.	NO. FOUND.	MOUND.	NO. FOUND.	MOUND.	NO. FOUND.
IV.	11	XXVII.	5	XLVI.	6
V.	15	XXXV.	5	LXII.	12
IX.	14	XXXVII.	6	LXIII.	6
XVIII.	10	XXXVIII.	8	LXIV.	7
XXIV.	6	XLII.	8	LXXIV.	5

In the following tables all dimensions are given in millimetres. If a whorl is not truly circular the maximum diameter is given; when the whorl is obviously of oval outline then the maximum and minimum diameters are recorded. The maximum dimension is given in recording thickness. When a perforation is countersunk or the hole tapers, the maximum diameter of the hole at the mouth has been given, unless otherwise stated.¹

Table XV gives the average dimensions of the various types of spindle-whorls found in the Village. The average diameter of the stone whorls is 44·15mm.; of the baked clay specimens 36·6mm.; and of those made from the heads of animal bones 38·5mm. The two last-named types are relatively thick when compared with the stone whorls.

ABBREVIATIONS AND SIGNS USED IN THE FOLLOWING TABLES.

c.s. = countersunk.

s.c.s. = slightly countersunk.

‡ In Taunton Mus.

|| In British Mus.

* Approximate.

† In peat outside the border-palisading.

1. First floor.

2. Second floor.

3. Third floor.

4. Fourth floor.

9. Ninth floor.

} Indicated in "Mound"
column when floor is
known.

1. We are inclined to agree with Mr. Balch ("Wookey Hole," 1914, p. 112) that it is possible that some of the so-called spindle-whorls, especially those with holes which taper from both surfaces, may have been used for some other purpose.

TABLE I.

FLAT SPINDLE-WHORLS OF LIAS STONE, OF OBLONG CROSS-SECTION.

(The stone referred to in this table is, with few exceptions, Lias. Some of the specimens have slightly rounded edges.)

No.	DESCRIPTION.	DIAM. OF WHORL.	THICK- NESS.	DIAM. OF HOLE.	MOUND.	YEAR.	ILLUSTRATED IN
W 4	Pale grey	33.3	10.8	7.5	XLVI	1893	Plate XCI.
W 7	Pale grey	33.5	9.7	7.8	XXIV	1893	
W 8	Dirty white ; weathered	32	8	7.6	XXIV	1893	
W 10	(Mislaid)	—	—	—	XLII	1893	
W 14	Grey	56	12	8.8 (c.s.)	XLIII	1893	
W 17	Pale grey	52	10.5	7.5	XLVI	1893	Plate XCI.
W 20	Pale grey ; roughly formed	49	18	9.3 (c.s.)	LXV	1892	
W 22	Pale grey ; very smooth ; part missing ; slightly convex on one surface, concave on the other	50.7	12	10	XLII	1893	
W 23	Pale grey	47	8	8.7 (c.s. on one face)	XXIV	1893	
W 29	Grey slate ; in two pieces	40.5	4.3 (scaled)	9.5 (c.s.)	LXIV	1892	
W 32	Pale grey ; weathered, and no longer circular in plan	40	7.5	6	LXV	1892	Plate XCI.
W 35	Pale grey ; not circular ; apparently weathered	36.2	6.5	5.5	LXII	1892	
W 36	Pale grey ; weathered	36	10	6.5	LXIV	1892	
W 38	Creamy white	41	16	10.3 (c.s.)	LXII	1893	
W 42	Chalk (white)	33	7	5	LXIII	1892	
W 48	Yellowish-brown ; weath- ered ; repaired from two fragments	28.6	6.7	7.5 (c.s.)	—	1892	Plate XCI.
W 49	Brown ; weathered ; about two-thirds remaining	35*	16.5	8.5 (larger on one face than the other)	—	1892	
W 52	Grey, but partly blackened by fire	49	10.3	10 (c.s.)	VII†	1894	
W 53	Grey	32	11.5	5.5	XLVIII†	1894	
W 58	Pale brownish-white	52	10 (scaled)	11 (c.s.)	—	1894	
W 59	Pale grey ; much weathered	61	9 (scaled)	10.5	—	1894	Plate XCI.
W 62	Pale grey ; slightly convex on one surface, concave on the other ; two-thirds remaining ; weathered	45	14	9 (c.s.)	—	1894	

TABLE I—*continued.*

No.	DESCRIPTION.	DIAM. OF WHORL.	THICK- NESS.	DIAM. OF HOLE.	MOUND.	YEAR.	ILLUSTRATED IN
W 63	White	49.5	15.5	9	XLVIII†	1894	Plate XCI.
W 68	Pale brownish-grey	51.5	16.5	8.2	XXVII	1895	
W 69	Pale brownish-grey; wea- thered, and no longer cir- cular in plan	46.2	9	10.3	XXVII	1895	
W 75	Pale grey; rather shapeless flat piece, with central perforation	55	8	5.6	XVIII ⁴	1895	
W 78	Pale brownish-grey	43.3	4 (scaled)	6.3	XVIII ⁴	1895	Plate XCI.
W 82	Pale greyish-white; damaged	42.5	10	9.5 (c.s. on one surface)	XLII	1895	
W 88	Pale grey	42	11.3	7	V†	1896	
W 89	Pale grey	37	10	5.3	V†	1896	
W 94	Greyish-orange; one-third missing; weathered	53	14.2	5.6	IX	1896	
W 107	Pale grey	42.7	18.2	6.5	IV ¹	1896	
W 108	Pale grey; slightly convex on one surface, concave on the other	52.5	6.5	8	IV ²	1896	
W 110	Pale brownish-white	43	13.5	10	IV ¹	1896	
W 112	Pale brownish-grey; orange colour on one face; wea- thered; repaired from four pieces	57.3	8	5.7	V ¹	1896	
W 115	Pale grey	36.2	12.3	4.5	V ⁸	1896	Plate XCI.
W 119	Pale grey	51.5	13	9	V†	1896	
W 125	Pale grey; a shapeless flat piece with central hole (? spindle-whorl)	62	10	8.5 (c.s.)	V	1896	
W 136	Creamy grey; repaired from four pieces	48	10.8	9 (c.s.)	XXIX	1898	
W 137	Pale grey; weathered	50	11.7	8	XXXVIII	1898	Fig. 176.
W 141	Coated with an orange- coloured deposit	53.3	11	10.5	XXXVIII ²	1898	
W 142	Pale grey; a shapeless flat piece with central hole (? spindle-whorl)	61.3	6	5.5	XXXVIII ²	1898	
W 143	Pale brownish-grey; much weathered	46.8	9 (scaled)	10	XXXVIII	1898	
W 159	Pale grey; weathered	42.2	14	10	XXXV	1898	
W 161	Creamy-white	43.5	10	7	XXXV	1898	
W 168	Pale grey; found in two pieces	41.2	7.7	6.1	LXIX ¹	1905	
W 176	Pale grey	40.2	9.5	10.5 (c.s.)	LXXI ¹	1905	
W 186	Pale grey; decomposed; friable condition	35.5	10	4	LXXIV	1906	

TABLE II.

SPINDLE-WHORLS OF LIAS STONE, WITH DECIDEDLY ROUNDED EDGES;
SURFACES GENERALLY MORE OR LESS FLAT.*(The stone referred to in this table is, with few exceptions, lias.)*

No.	DESCRIPTION.	DIAM. OF WHORL.	THICK- NESS.	DIAM. OF HOLE.	MOUND.	YEAR.	ILLUSTRATED IN
W 15	Greyish-white ; ? lias	51.5	12.5	9 (c.s.)	XLII	1893	Plate XCI.
W 30	Pale grey ; the mouth of the hole on both sides or- namented with radiating notches	45.2	16.3	9.5	LXXIX	1892	
W 39	Light drab ; stained yellow ; weathered ; ? lias	52.5	8	6.5	XLIV	1893	
W 40	Pale grey ; slightly convex surfaces ; weathered	27	6.8	8.5	LXII	1892	
W 51	Whitish-grey ; slightly con- vex surfaces	48.8	20.5	11	VIII†	1894	Plate XCI.
W 77	Pale grey ; weathered	32.3	11	6.5	XVIII ⁴	1895	
W 79	Pale yellowish-grey	51	12	8.8	XVIII ⁴	1895	
W 80	Grey	55	12.5	8.5 (c.s.)	XVIII	1895	
W 104	Pale grey ; slightly convex surfaces	57.2	19	7	IX	1896	Plate XCI.
W 106	Pale grey ; slightly convex surfaces ; excentric hole	36.4	12	4.5	IV ¹	1896	Plate XCI.
W 109	Pale grey	52	10.5	6 (c.s.)	IV ¹	1896	
W 114	Stained orange ; weathered	42	15.2	7.7	V	1896	Fig. 176.
W 145	Pale grey ; smooth, but weathered	45.5	13	11	XXXVII ²	1898	
W 154	Pale yellowish-grey ; wea- thered	28.2	16	8	XV	1895	
W 174	Pale grey ; bi-convex section	49	22.5	10 (c.s.)	LXXI ²	1905	

TABLE III.

WHORLS OF LIAS STONE, WITH INCOMPLETE HOLES.

No.	DESCRIPTION.	DIAM. OF WHORL.	THICK- NESS.	DIAM. OF HOLE.	MOUND.	YEAR.	ILLUSTRATED IN
W 118	Pale drab ; bi-convex cross- section ; perforation be- gun on both surfaces ; on one side the hole is large and irregular, on the other circular and countersunk, penetrating at least half- way through the whorl	44	25	—	V	1896	Plate XCI.
W 126	Pale grey ; flat type, oblong cross-section ; hole partly drilled on one surface	46	8.5	5.5	V	1896	Plate XCI.

TABLE IV.

FLAT DISCS OF LIAS, NOT PERFORATED; PROBABLY INTENDED FOR
SPINDLE-WHORLS WHEN COMPLETED.

(All pale grey in colour.)

No.	DESCRIPTION.	DIAM. OF DISC.	THICK- NESS.	MOUND.	YEAR.	ILLUSTRATED IN
S 2	Not truly circular; rough at the edges	41	10	XXIV ¹	1893	Plate XCI.
S 3	—	47	9	XXIV	1893	
S 4	Not truly circular	45	11.5	XLII	1893	
S 9	Not actually circular; rough at the edges	57	14	—	1893	
S 12	—	46	3.5	—	1893	

TABLE V.

SPINDLE-WHORLS OF STONE, CHIEFLY SANDSTONE, AND
EXCLUDING LIAS.

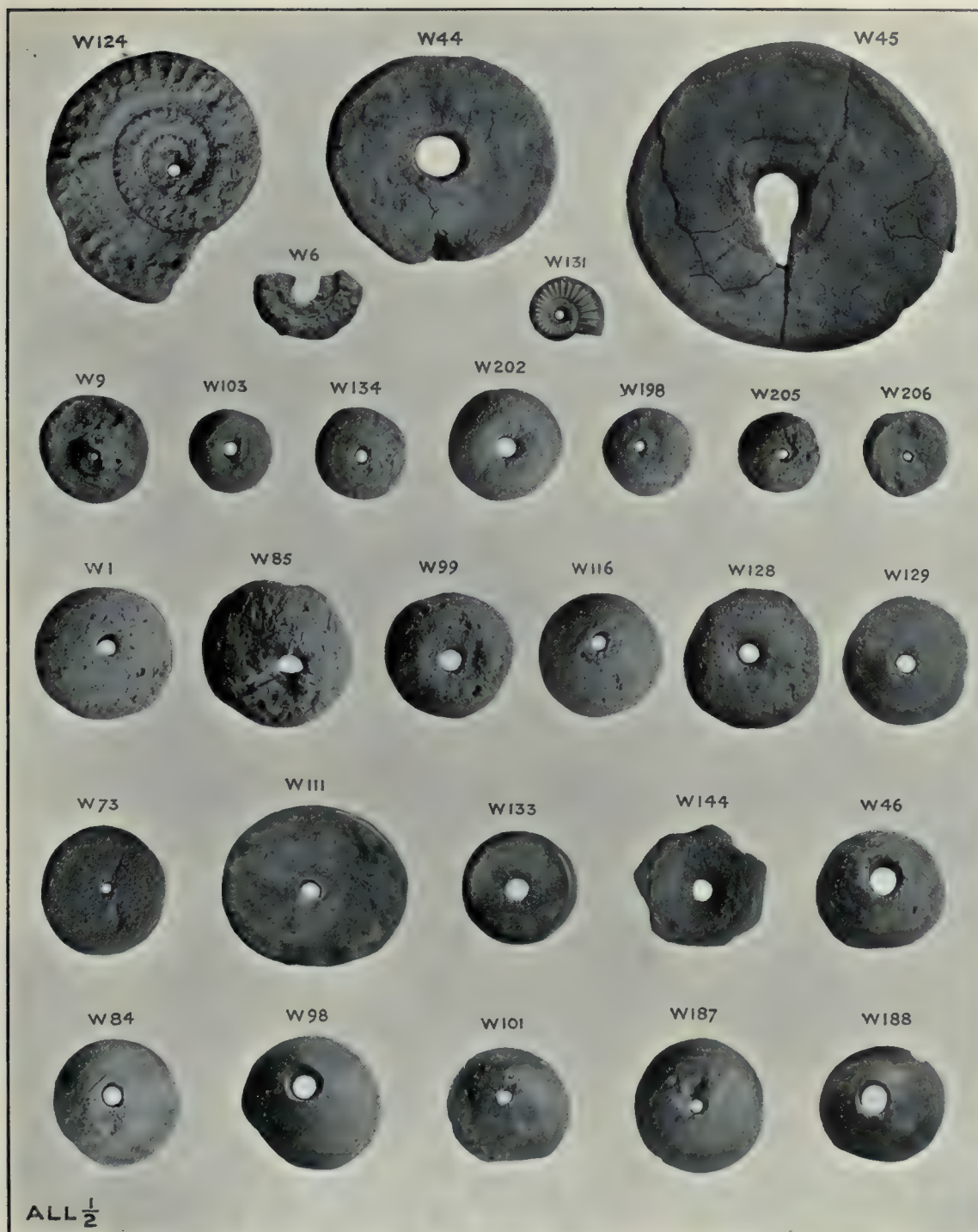
No.	DESCRIPTION.	DIAM. OF WHORL.	THICK- NESS.	DIAM. OF HOLE.	MOUND.	YEAR.	ILLUSTRATED IN
W 2	Dark grey; convex sur- faces; rounded edges	41	16	7 (s.c.s., and larger on one side than the other)	LXV	1893	
W 3	Grey; irregular outline; flat surfaces; edges straight but roughly cut	46	17	9 (s.c.s.)	XXII	1893	
W 5	Grey; surfaces slightly convex; rounded edges; somewhat weathered	49.5	17	9 (s.c.s.)	XLVI	1893	
W 11	Grey; not truly circular; surfaces flat, but not smooth	57	13	8 (s.c.s.)	XLII	1893	
W 13	Pale grey; flat surfaces; straight edges	34	9	4.5	XLVI	1893	
W 16	Greyish-white; rough flat surfaces; slightly convex edges	55.5	14.5	10 (c.s. on one surface)	XLV	1893	

TABLE V—continued.

No.	DESCRIPTION.	DIAM. OF WHORL.	THICK- NESS.	DIAM. OF HOLE.	MOUND.	YEAR.	ILLUSTRATED IN
W 18	Grey ; oval disc ; flat surfaces ; rounded edges	42.5 × 50	10	7 (s.c.s.)	XLIII	1893	Plate XCI.
W 21	Reddish - grey ; flat surfaces ; rounded edges	51	16.5	7	XXV	1893	Plate XCI.
W 24	Grey ; slightly convex surfaces ; rounded edges	39.5	18	8 (s.c.s.)	LXII	1892	
W 25	Light yellowish - brown ; edges roughly rounded ; somewhat weathered	44	18	9 (c.s.)	LXV	1892	
W 26	Pale reddish - grey ; flat surfaces ; rounded edges ; oval outline	42.5 × 48	13	7	XLV	1893	
W 28	Grey ; flat surfaces ; rounded edges ; somewhat irregular outline	44.5	10	9 (s.c.s.)	LXII	1892	
W 31	Pale grey ; convex on one face, flat on other ; rounded edges	43.5	19	8 (s.c.s.)	LXII	1892	
W 34	Half a whorl ; surfaces slightly convex ; rounded edges	36*	12	—	IX	1892	
W 37	Light brown ; irregular oval ; fractured along one face	37.5	—	6	LXII	1892	
W 56	Light greyish-brown ; flat surfaces ; straight edges ; repaired from two pieces	32.5	12	7	XLIX	1894	
W 57	Pale yellowish-grey ; slightly convex surfaces ; rounded edges	43.5	12.5	6.5 (c.s. on one surface)	—	1894	Plate XCI.
W 60	Grey ; flat surfaces (one fractured) ; rounded edges	46.5	15	7	—	1894	
W 61	Grey, burnt black on one side ; bi-convex cross-section ; rounded edges	47	21.5	11 (c.s.)	—	1894	Plate XCI.
W 70	Grey ; flat on one surface, slightly convex on other ; rounded edges	47.5	19	5	XXVII ⁴	1895	Plate XCI.
W 71	Very pale drab ; flat surfaces, with well rounded edges ; slightly weathered	43	19	8	XXVII ¹	1895	Plate XCI.
W 72	Reddish-grey ; one surface flat, the other uneven	59	17.3	8.5 (s.c.s.)	LXXV ²	1907	

TABLE V—*continued.*

No.	DESCRIPTION.	DIAM. OF WHORL.	THICK- NESS.	DIAM. OF HOLE.	MOUND.	YEAR.	ILLUSTRATED IN
W 76	Pale grey; small smooth pebble of bi-convex section	28.5	15	6	XVIII ^a	1895	Plate XCI.
W 86||	Grey; flat surfaces; rounded edges; four slightly incised transverse notches on the edge	53	17.5	9.5 (c.s.) (min. 4.5)	LVII	1896	Plate LXVIII.
W 90	Pale greyish-brown; flat surfaces; slightly convex edges	40	18	11 (c.s.)	XI	1896	Plate XCI.
W 93	Light purplish-brown; flat surfaces; slightly convex edges	54.5	12	5	XI	1896	Plate XCI.
W 100	Pale brown; bi-convex cross-section	33	19	6	IX	1896	
W 102	Grey; flat surfaces; straight edges	33	10	8 (s.c.s.)	IX ¹	1896	Plate XCI.
W 105	Pale grey; damaged and weathered	—	20	8	IV ¹	1896	
W 120	Pale yellowish-grey; fairly flat surfaces; rounded edges; weathered	41.5	18	8.5 (c.s.)	V	1896	
W 122	Grey; smooth; bi-convex section; hole narrow in the middle	39	17	6	IV	1896	Plate XCI.
W 123	Light brown; slightly convex surfaces; irregular outline (somewhat square); rounded edges	34.5	13	4.5	IV	1896	
W 127	Brown; irregular outline; hole apparently chipped	39 × 43.5	22	10*	—	—	
W 135	Burnt nearly black; slightly convex surfaces; rounded edges	42.5	25.5	8	XV	1897	Plate XCI.
W 139	Pale grey; flat surfaces; straight edges	37	10.5	5	XXXVIII ²	1898	Plate XCI.
W 140	Greyish-white; flat surfaces; edges slightly convex	49.5	16	7	XXXVIII	1898	
W 147	Pale brown; plano-convex section; rounded edges; hole larger on one side than the other	55	21.5	10	XXXVII	1898	
W 148	Pale greyish-brown; flat surfaces; roughly oblong in plan, with rounded corners; hole larger on one side than the other	52.5	12.5	7.5	XXXVII	1898	



SPINDLE-WHORLS OF BAKED CLAY, BONE, ETC., GLASTONBURY LAKE VILLAGE.

From Photographs by Mr. H. St. George Gray.

TABLE V—continued.

No.	DESCRIPTION.	DIAM. OF WHORL.	THICK- NESS.	DIAM. OF WHORL.	MOUND.	YEAR.	ILLUSTRATED IN
W 150	Pale greyish-brown ; fairly flat surfaces ; rounded edges ; somewhat damaged	46	16.5	8.5	XXXVI	1898	Plate XCI
W 152	Pale grey ; flat surfaces ; rounded edges	48	13	7	XVI ^a	1898	
W 153	Yellowish-brown ; surfaces rather uneven and slightly convex ; weathered	33	13.5	6	XVI ¹	1898	
W 155	Pale greyish-brown ; incomplete and much weathered	40	13	9 (c.s.)	XVI ^a	1898	
W 156	Pale yellowish-grey ; bi-convex section	45	23	10 (c.s. on one surface)	XXIX	1898	
W 160	Grey ; smooth, flat surfaces ; rounded edges	47.5	16	9 (s.c.s.)	XXXV	1898	Plate XCI.
W 162	Pale yellowish-white ; much weathered irregular ring with large hole ; probably not a spindle-whorl (but included here for convenience)	38	—	—	XXXIII	1898	
W 163	Pale yellowish - brown ; slightly convex surfaces ; rounded edges ; weathered	46	12	8	XXXIII	1898	Plate LXVIII.
W 166 [†]	Grey ; slightly convex surfaces ; straight sides	41.5	15	13 (c.s.) (min. 5.7)	LIII	1904	
W 167||	Flat surfaces ; rounded edges	32	9	4	LIII	1904	
W 172 [†]	Pale grey ; slightly convex surfaces ; straight sides ; somewhat weathered	50	18	6	LXX	1905	
W 173	Half a whorl, split along one surface, the other slightly convex ; rounded edges	43	—	8	LXXI ^a	1905	
W 175	Grey ; bi-convex, but flatter on one surface than on the other	44	28	7 (c.s.)	LXXXI	1905	Fig. 176.
W 183	Flat surfaces ; slightly convex edges ; hole not quite central	52	10	6.5	LXXVI ^a	1906	Fig. 176.
W 185	Pale grey ; flat surfaces ; smooth edges, slightly convex	44	15.5	6.5	LXXIV ⁴	1906	Plate XCI.

TABLE VI.
WHORLS OF SANDSTONE, WITH INCOMPLETE HOLES.

Nc.	DESCRIPTION.	DIAM. OF WHORL.	THICK-NESS.	MOUND.	YEAR.	ILLUSTRATED IN
W 54	Grey ; bi-convex section ; hole just begun on both surfaces	39·6 × 44	15·5	LXXXIV	1907	
W 74	Disc, not truly circular ; rounded edges ; hole bored for some little depth on one surface	36	12·5	XVIII	1895	Plate XCI.
W 91	Disc, not truly circular ; edges well worked in places ; hole bored half through on one surface	56·5	12	IX ¹	1896	Plate XCI.
W 138	Smooth whorl, of bi-convex section ; not truly circular ; hole bored about one-third through on one surface	54	17·5	XXXVIII ²	1898	
W 149	Smooth whorl, not truly circular ; hole (diam. 6·5mm.) bored half-way through on one surface	38·5	13	XXXVII	1898	
W 169	Smooth whorl of bi-convex section ; not circular ; hole just begun on one surface	48·5	20	LIII	1905	
W 177	Smooth whorl of indurated sandstone of Devonian age ; almost circular in plan ; bi-convex section. An excentric hole has been begun on one surface ; a ring has been faintly scratched round it in a more central position,—perhaps to correct the faulty beginning of drilling the hole. It was probably intended to finish the hole by “pecking” instead of by drilling, as the latter process, continued from an excentric starting - point, would yield a lop-sided result ; whereas, by a pecking process, the position of the hole could be properly adjusted. §	41	16	LXXIV ¹	1902	Plate XCI.
W 180	Disc ; irregular oval form ; flat surfaces ; hole begun on one side	41	9	LXVIII ²	1906	Plate XCI.
W 191	Flat disc, with rounded edges ; hole begun on one surface	51	12	XII	—	
S 36	Thin, flat, smooth piece of indurated sandstone of Devonian age ; irregular oval form ; rounded edges ; perforation begun on one surface	53 × 61·5	7	LXXVIII ¹	1904	Plate LXVIII.
S 37	Whorl with slightly convex surfaces and straight edges ; hole begun on one surface	56	22	LXXVIII	1904	
S 38‡	Grey disc, not truly circular ; plano-convex section ; hole (diam. 5·3mm.) has been begun, but is not quite central	46 × 51·5	19·5	LIV	1904	Plate LXVIII.

§ Figured in *Proc. Som. Arch. Soc.*, XLVIII, ii, Plate iii, 10.

TABLE VII.

DISCS OF SANDSTONE, WITHOUT ANY INDICATION OF A CENTRAL HOLE.

No.	DESCRIPTION.	DIAM. OF WHORL.	THICKNESS.	MOUND.	YEAR.	ILLUSTRATED IN
W 179	Flat surfaces ; straight sides	38.5	10	LXVIII ¹	1906	Plate XCI. Plate XCI.
W 181	Rough disc, varying in thickness	53	—	LXXXIII	1906	
W 182	Weathered ; plano-convex cross-section	47	17	LXXIV ²	1906	
W 214	Plano-convex cross-section	45	17	LXXX	1905	
S 5	Roughly worked ; partly smoothed on edges	49	16	XLII	1893	
S 7	—	45	9.5	LXII	1892	
S 8	Finely worked ; slightly convex surfaces ; straight sides	48	15.5	IX	1892	
S 15	—	42.5	9	XLVIII	1894	
S 17	Four roughly worked discs (two having very rough edges) (a)	40	10	—	1894	
	(b)	40	8			
	(c)	43	9.5			
	(d)	46	10.5			
S 27	Rough edges	31.5	11	XXXVI	1898	
S 34 [†]	Flat surfaces ; edges roughly worked	50	13	LXIV	1904	
S 35||	Flat surfaces	52	—	LXXVIII	1904	
S 39	Rounded edges	38	11	LIV	1905	
S 42	Smooth disc ; slightly convex on both surfaces	50	11	LXXIV ³	1906	

TABLE VIII.

STONE SPINDLE-WHORLS, OF GLOBULAR FORM.

No.	DESCRIPTION.	DIAM. OF WHORL.	THICKNESS.	DIAM. OF HOLE.	MOUND.	YEAR.	ILLUSTRATED IN
W 41	Lias ; dirty white ; weathered	36	24.7	12.5 (c.s.)	—	1893	Plate XCI.
W 113	Lias ; pale grey	34.5	26.8	9.5 (c.s.)	V ¹	1896	
W 190	Small whorl, perforated rather more than half-way through from one side ; much weathered	37	17	5	—	—	
W 207	Probably lias ; oval outline	33.5 × 39	25	9	—	—	Plate XCI.
W 211	Perhaps lias ; light grey ; large hole (? bead)	31	24.5	10 (c.s.)	—	—	

TABLE IX.

SPINDLE-WHORLS OF GREY SHALE.

(Mr. J. Allen Howe, Curator of the Geological Museum, Jermyn Street, London, describes this material as "a kind of shale resembling in some respects certain beds of Fuller's earth.")

No.	DESCRIPTION.	DIAM. OF WHORL.	THICKNESS.	DIAM. OF HOLE.	MOUND.	YEAR.	ILLUSTRATED IN
W 12	Well worked; surfaces and edges slightly convex	35	14	5.5	XXI	1893	Plate XCI.
W 27	One-half remaining	44	9.5	7.5	XXIII	1893	
W 33	Two-thirds remaining; surfaces slightly convex	43	12	7	XXI	1893	
W 64	Rounded edges; damaged	44	16.5	5.7	LI	1894	Plate XCI.
W 65	Irregular; one surface fairly flat; rounded edges	51.5 × 56	16	7.5	XLI	1894	
W 81	Surfaces slightly convex; straight edges; hole not quite central	41	13.4	6	LXXVI†	1895	Fig. 176.
W 92	Surfaces and edges slightly convex	33.5	15.5	6.5	IX	1896	Plate XCI.
W 164	Fragmentary	—	—	—	XXX	1898	
W 170	One-half remaining; surfaces slightly convex; edges fairly sharp	57*	11.5	7	LXXX	1905	
W 196	Thick whorl; fragmentary	—	19	4.5	—	1897	

TABLE X.

AMMONITES WITH A CENTRAL PERFORATION, PROBABLY USED AS SPINDLE-WHORLS.

(These specimens were sent to Mr. J. Allen Howe, and were identified by Mr. S. S. Buckman.)

No.	DESCRIPTION.	DIAM. OF WHORL.	THICKNESS.	DIAM. OF HOLE.	MOUND.	YEAR.	ILLUSTRATED IN
W 6	Rather more than one-half of an ammonite (<i>Dactylioceras</i> cf. <i>annulatum</i> , J. Sowerby sp., from the Upper Lias); the hole is natural; much weathered	34	11	9	XXIV	1893	Plate XCII.
W 124							
W 131	Ammonite with an excentric hole which is probably artificial; much weathered. (Identified as <i>Hildoceras</i> cf. <i>frons</i> , Auctt. sp.; from the Upper Lias)	79	16	5	IV	1896	Plate XCII.
	Ammonite with a central hole, which is probably artificial. (Identified as <i>Seguenziceras crassitesta</i> , Quenstedt sp. 1885, Plate xlii, fig. 45; from the Middle Lias)	25	7.2	3.7	IV ¹	1897	Plate XCII.

TABLE XI.
SPINDLE-WHORLS OF BAKED CLAY.

No.	DESCRIPTION.	DIAM. OF WHORL.	THICK- NESS.	DIAM. OF HOLE.	MOUND.	YEAR.	ILLUSTRATED IN
W 1	Smooth surface ; bi-convex section	41	20	6	XXII	1893	Plate XCII.
W 9	Thin, flat disc, with straight edges and a conical projection on one surface in the position of the hole	34.5	7 (including projection, 15)	4	XLIV	1893	Plate XCII.
W 19	Half a whorl of the same type as W 85 ; diamond-shaped section	44.5*	25.5	6.5	LXIV	1892	
W 43	About one-third of the circumference of a small whorl ; split	—	—	6.5	LXIII	1892	
W 50	Convex surfaces ; straight sides	36	26	7.5	XIX	1894	
W 83	Rough whorl, thin and flat	31.5	10	6	XLIV	1895	
W 85	Roughly formed ; diamond-shaped section	44.5*	31	7.5	LVIII	1896	Plate XCII.
W 87	Rude whorl, somewhat distorted ; flat surfaces ; straight edges	46.5 × 51	17	11 (c.s.)	V†	1896	
W 95	Bi-convex section ; much weathered ; part missing	44	22	11	LXIII	1907	
W 97	Rough whorl, thin and flat ; split and damaged	—	—	6	IX ^a	1896	
W 99	Hexagonal section ; slight concavity surrounding hole on one surface	38.5	21	6	IX ^a	1896	Plate XCII.
W 103	Surfaces roughly flat ; rounded edges ; perhaps a bead	26	22.5	4.5	IX	1896	Plate XCII.
W 116	Globular form, with slight ridge round the middle ; smooth surfaces	36	30	6	XIII	1907	Plate XCII.
W 121	One - third of a cheese-shaped whorl of small size	—	24	—	V	1896	
W 128	Slightly convex surfaces ; rounded edges	42.5	20.5	7.5 (c.s.)	XVIII	1896	Plate XCII.
W 129	Convex surfaces ; straight sides ; same type as W 50	38	32.5	6	III	1897	Plate XCII.
W 130	Rough whorl, thin and flat ; straight edges ; hole ex-centric	35 × 38	10	6	II	1897	
W 132	Slightly convex surfaces ; edges nearly straight ; piece missing ; same type as W 50	35	25.5	9 (c.s.)	IV ^a	1897	

TABLE XI—*continued.*

No.	DESCRIPTION.	DIAM. OF WHORL.	THICK- NESS.	DIAM. OF HOLE.	MOUND.	YEAR.	ILLUSTRATED IN
W 134	Bi-convex section ; smooth surfaces	28.5	17	4	XVIII	1897	Plate XCII.
W 146	Bi-convex section ; smooth surfaces	35.5	20	9	XXXVII	1898	
W 157	Diamond - shaped section ; same type as W 85	38	26	6	XXXV	1898	
W 171||	Pronounced convexity on both surfaces	40	34	4 (min.)	LXX	1905	
W 189	Convex at top and bottom ; rounded edges ; smooth ; more than one-half missing	31*	20	7	LXII	1892	Plate XCII.
W 192	Flat at top and bottom ; rounded edges ; more than one-half missing	41*	19	—	LXIV	1892	
W 193	Globular form, small size ; more than one-half missing	—	—	—	—	—	
W 194	Originally cheese - shaped, but distorted by pressure in baking ; small size, and perhaps not a spindle-whorl	—	—	—	—	—	
W 195	Thin, flat, smooth whorl ; small distorted hole	36	10	—	—	—	
W 197	Globular form ; less than one - half remaining ; small size	—	21.5	—	LXIV	1892	
W 198	Globular form, somewhat flattened at top and bottom ; perhaps too small for a spindle-whorl	26.5	20	5 (larger on one face than other)	LXIII	1892	
W 199	Globular form ; small ; damaged ; perhaps a bead	24	22	3.5	LXIII	1892	
W 200	Convex at top and bottom ; edges slightly angular ; same type as W 50	38	31	5	LXIII	1892	
W 201	Roughly formed ; slightly convex at top and bottom ; rounded edges ; hole excentric and considerably countersunk on both surfaces ; could hardly have been used as a spindle-whorl	31.5	15	11	LXII	1892	
W 202	Globular form ; top and bottom surfaces somewhat flattened	34	23	6	LXII	1892	Plate XCII.

TABLE XI—continued.

No.	DESCRIPTION.	DIAM. OF WHORL.	THICK- NESS.	DIAM. OF HOLE.	MOUND.	YEAR.	ILLUSTRATED IN
W 203	Half a large whorl (? spindle-whorl) of rude workmanship; rough surface; rounded form, but somewhat angular; hole larger at one end than other	63.5*	48.5	13*	—	—	Plate XCII.
W 204	Globular form; little more than one-half remaining	—	—	6	—	—	
W 205	Globular form; roughly made; small; perhaps a bead	26	22	3.5	V†	1896	
W 206	Cheese-shaped; small hole (excentric on one surface); perhaps too small for a spindle-whorl	26	18	3	—	—	Plate XCII.
W 208	Globular form; damaged	34	29	6	—	—	
W 209	Globular form; pitted surfaces; about one-half remaining; perhaps a bead	26*	22	6	—	—	
W 210	Globular form; flat at top and bottom; about one-half remaining	30	24	8	—	—	
W 212	Thick, roughly made, with convex edges; damaged	29.5	25	6	—	—	
W 213	Globular form; fairly smooth surfaces; oval cross-section; one-third missing	33	26	6.8	—	—	

TABLE XII.

SPINDLE-WHORLS FORMED FROM FLAT PIECES OF POTTERY.

No.	DESCRIPTION.	DIAM. OF WHORL.	THICK- NESS.	DIAM. OF HOLE.	MOUND.	YEAR.	ILLUSTRATED IN
W 73	Thin whorl, dark grey; well worked, but not a true circle; slightly convex edges	41	8.5	4	XVIII ¹	1895	Plate XCII.
W 158	Thick whorl, reddish-brown on one surface, black on the other	34.5	16	4.5 (s.c.s.)	XXXV	1898	
W 178	Concavo-convex section (slight); light brown outside, black inside	44.5	13	6 (s.c.s.)	LXXXI	1905	
W 184	Made from base of a black pot, with ornamentation	49 × 52	10	9 (s.c.s.)	LXXVI ²	1906	Fig. 176.

TABLE XIII.

SPINDLE-WHORLS OF BONE AND ANTLER.

No.	DESCRIPTION.	DIAM. OF WHORL.	THICK- NESS.	DIAM. OF HOLE.	MOUND.	YEAR.	ILLUSTRATED IN
W 111	Made from a piece of skull-bone of ox or horse; oval; edges well worn	50 × 58	9·5	7·5 (s.c.s.)	LXXXI	1907	Plate XCII.
W 133	Made from a section of red-deer antler; flat surfaces, one of which is polished; rounded edges	36	12·5	7	LXIV	1892	Plate XCII.
W 144	Made from a fossil vertebra (probably of a saurian); surfaces decidedly concave (natural)	40	16	7	XXXVIII	1898	Plate XCII.

TABLE XIV.

SPINDLE-WHORLS MADE FROM THE HEADS OF FEMORA AND HUMERI OF ANIMALS.

(In all cases the diameter of the hole is given at the top, where the head of the bone is smooth.)

No.	DESCRIPTION.	DIAM. OF WHORL.	THICK- NESS.	DIAM. OF HOLE.	MOUND.	YEAR.	ILLUSTRATED IN
W 46	Cancellous tissue partly removed	38·5	23·5	10	XLVI	1893	Plate XCII.
W 47	Tissue not hollowed out; hole bored through most of the tissue, but does not pierce the top	39	33	—	XLVI	1893	
W 55	Tissue partly removed	39	26	7·5	XXVI	1894	
W 66	Epiphysis of young animal	39	31	8	XXVII	1895	
W 67	Tissue not hollowed out	39	30	11	XLII	1895	
W 84	Epiphysis of young animal	38	21·5	7	LX	1895	Plate XCII.
W 96	Tissue not hollowed out	36	23	6	IX	1896	
W 98	Tissue largely hollowed out, as in W 117	41·5	28·5	11	IX	1896	Plate XCII.
W 101	Epiphysis of young animal	36	33	3·5	IX	1896	Plate XCII.
W 117	Tissue hollowed out considerably	36	18·5	13	V	1896	
W 151	Tissue not hollowed out	38·5	22	7	XXXVII	1898	
W 187	Epiphysis of young animal	40	23	5	LXII	1892	Plate XCII.
W 188	Tissue partly removed	39	24	9·5	—	—	Plate XCII.

TABLE XV.

AVERAGE DIMENSIONS OF THE LARGEST SERIES OF SPINDLE-WHORLS
FOUND IN THE LAKE-VILLAGE.

		AVERAGE DIAM. OF WHORLS.	AVERAGE THICKNESS OF WHORLS.	AVERAGE MAX. DIAM. OF HOLES.
TABLE I.	Flat Spindle-whorls of Lias, with straight edges	44.1	11.0	7.9
TABLE II.	Flat Spindle-whorls of Lias, with rounded edges	44.9	13.9	8.2
TABLE V.	Spindle-whorls of Sandstone	43.7	15.8	7.6
TABLE IX.	Spindle-whorls of Grey Shale	43.9	14.2	6.4
TABLE XI.	Spindle-whorls of Baked Clay	36.6	22.6	6.7
TABLE XIV.	Spindle-whorls made from the Heads of Bones	38.5	26.0	7.5

CHAPTER XX.

OBJECTS OF FLINT.

By H. ST. GEORGE GRAY.

MANY years ago when archæological research was practically in its infancy, the occurrence of flint implements was always regarded as indicative of a very early condition of human culture. One of the first antiquaries to upset this misconception was Colonel A. Lane Fox, when, 1868, he wrote a paper "On some Flint Implements found associated with Roman Remains in Oxfordshire and the Isle of Thanet."¹ In 1872 Dr. John Evans, in his first edition of "Ancient Stone Implements" (p. 255), pointed out that "flakes and rude chipped pieces of flint are also of very common occurrence on the sites of Roman occupation," and he gave various instances of such "finds."

It is, therefore, a well established fact that scrapers and other flint implements are frequently, indeed generally, found not only with Neolithic and Bronze Age remains but also in Late-Celtic and Roman sites;² so that no surprise can be expressed in finding chipped and polished flint somewhat plentiful in the Glastonbury Lake-village. There might be some little difficulty in the lake-dwellers obtaining flint in its raw state, but remains of the flint-chipping industry are frequently found situated many miles from the sources of origin of this valuable commodity of prehistoric times.

Judging from the number of cores, flint flakes and small chippings³ (also two hammer-stones,⁴ Plate XCIII) found in the Lake-village, it is reasonable to con-

1. *Journ. Ethnol. Soc. Lond.*, n.s., I, pp. 1-12. It might be noted that a chipped flint arrow-head, without barbs or tang, was found at Caerwent (*Venta Silurum*); it may of course have been dropped on the site long before the Romans came to Britain.

2. In 1913 the writer found in Cadbury Camp, S. Somerset, a chipped and polished flint celt in association with *terra sigillata* and other Roman pottery (*Proc. Som. Arch. Soc.*, LIX, ii, Plate v, fig. 20, and p. 22). Again, the writer and Mr. W. M. Tapp, F.S.A., found a similar implement of Neolithic type in trenching in the interior of Warham Camp, N. Norfolk (1914), where Roman shards were plentiful. A polished axe-head of granite (?), the cutting-edge of a highly polished flint celt (calcined), and other smaller flint implements were found on Ham Hill (Site C), Somerset, with Roman and Late-Celtic remains (*Proc. Som. Arch. Soc.*, LVI, i, 106).

3. It is quite possible that an implement similar to the *tribulum* was used in the Lake-village.

4. Hammer-stones of other material than flint are described on p. 607, and figured in Plate xcv.

clude that the working of flint was carried on by its inhabitants ; a large number of worked flints are also being found in the neighbouring village at Meare.

Those who have studied the crannogs of Scotland and Ireland are well acquainted with the fact that flint scrapers, knives, etc., have frequently been found with Late-Celtic remains in those localities.¹ Such survivals from earlier times are also of common occurrence in many post-Roman inhabited sites.

Professor Boyd Dawkins believes that the polished stone axes or celts (one perfect, one fragmentary), from Glastonbury, are Neolithic and that they were collected by the villagers ; and he adds that " these celts probably here, as elsewhere, had a superstitious value."² In 1910 a perfect polished stone axe was found in the Meare Lake-village, and another of flint in 1913.³

The writer has elsewhere pointed out⁴ that there is no absolute proof that the flint arrow-head, F 41, was made in the Village during the period of occupation ; but if it is a product of flint-working in the Village it is extremely interesting as indicating the use of the bow and arrow.⁵ The arrow-head is here illustrated (Fig. 177). The saw, F 42 (Plate XCIII, and Fig. 177), is also a good example of flint-chipping,⁶ and many of the scrapers and knives are of excellent workmanship.⁷

Flint implements found in many ancient places, in association with Bronze Age and later remains, do not always prove to be contemporary, for ancient workshop sites in certain situations may have been disturbed from time to time. But in the case of the Glastonbury Village it is highly improbable that a flint workshop existed



FIG. 177.—F 41, FLINT ARROW-HEAD ; F 42, FLINT SAW. GLASTONBURY LAKE VILLAGE.

From Drawings by Mr. E. Sprankling.

1. At the crannogs of Lochlee, Lochspouts, and Loch Buston for instance (*L.D. of E.*, pp. 412, 423, 430 ; *Cat. N.M. of Antiq. Scot.*, 1892, pp. 255, 257). A polished celt of mottled greenstone was found at Lochlee (Munro's "Ancient Scottish Lake Dwellings," 106).

2. *V.C.H. Somerset*, I, 199.

3. *Reports, Brit. Assoc.*, 1910, p. 262 ; 1913, p. 226.

4. *Archæologia*, LVIII, 485.

5. A bronze arrow-head was found in Bokerly Dyke, Woodyates (*P.R. Excavations*, III, 97, Plate clxxiii, fig. 11).

6. A finely worked flint saw was found in a pit of the Celtic period at Brixhampton, Oxon, 1857-8 (Ashmolean Mus.).

7. Dr. R. Munro has pointed out that arrow-heads and saws of flint were used in the Bronze and Early Iron Ages. ("Prehistoric Problems," chapter on saws and sickles).

before the lake-dwellers settled in the marshes. Some of the typical Neolithic forms may, however, have been brought to the Village and not manufactured there.

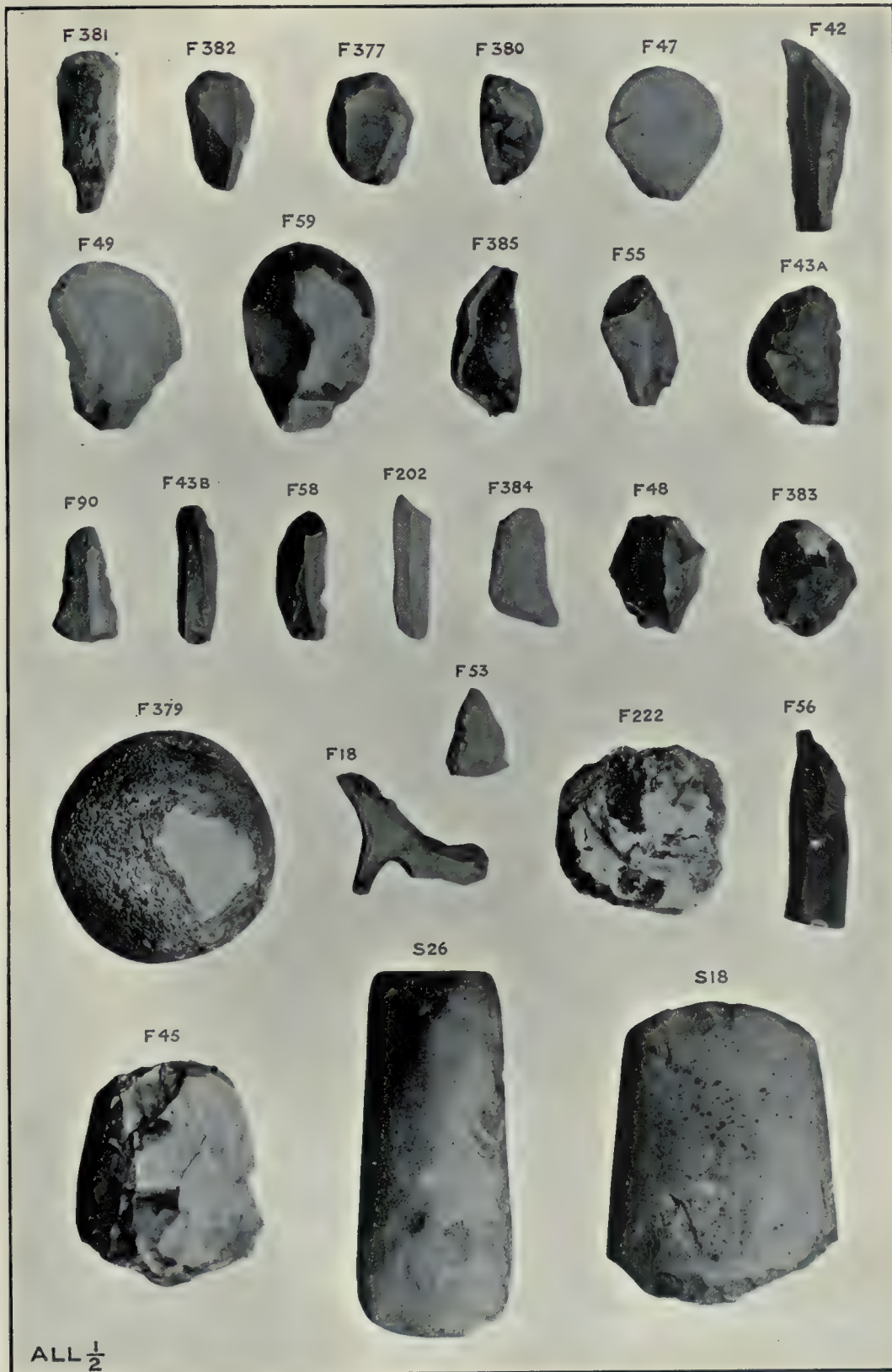
The following is a summary of all the objects of flint found in the Village; the stone celts (not of flint), pieces of chert, etc., are also included:—

DESCRIPTION.	NO. FOUND.
Arrow-head	1
Saw	1
Celts, or Axes, S 18 and S 26 (not flint)	2
Scrapers (unburnt, 28; burnt, 3)	31
Knives, Flakes, and small Implements, with secondary chipping	30
Flint Flakes and Chippings	285
Burnt flint Flakes (one with secondary chipping)	21
Chert Flakes	8
Tiny Chippings of Flint (length from $\frac{5}{16}$ to $\frac{7}{8}$ in.)	48
Hammer-stones	2
Cores	14
Fragments of Burnt Flint	21
Small lumps of Flint, unworked	34
Small lumps of Chert, unworked	19
Pieces of Flint with natural perforations	3
Total	520

The locality of every specimen was not kept in the earlier years of the excavations, but it is known that more flakes and scrapers were found in Mound V (1896) than in any other dwelling. In Mound LXXXIII no less than five scrapers and eight flakes (including one with secondary chipping) were found. A closer record was kept from 1904 to 1907, when the implements, etc., tabulated on p. 605, were discovered.

The collection includes three flints with natural perforations, and they may have been collected as charms for superstitious purposes. Although of irregular outline, they bear signs of prolonged use. Mr. F. T. Elworthy, F.S.A., informs us that these *holy flints* "are everywhere believed to be inimical of all kinds of witchcraft, but more especially are they reckoned as protectors against the much-dreaded yet ever-present Evil Eye. . . . In Europe the virtue of these things consists first in the holes being non-artificial, and next in their being found under natural conditions."¹ But the substance is of no importance, as the virtue of this common prophylactic lies in the perforation itself.

1. "Perforated Stone Amulets," *Man*, 1903, art. 8 (also published separately with postscript); *Reports, Brit. Assoc.*, 1902, 767. See also Elworthy's "Evil Eye." Mr. Elworthy bequeathed his famous collection of charms to the Taunton Castle Museum where they are now exhibited,



FLINT IMPLEMENTS AND TWO CELTS (OF DIFFERENT STONE),
GLASTONBURY LAKE VILLAGE.

From Photographs by Mr. H. St. George Gray.

FLINT IMPLEMENTS, ETC., FOUND IN THE GLASTONBURY LAKE VILLAGE,
FROM 1904 TO 1907.

MOUND.	DESCRIPTION.	THOSE NUMBERED.	NO. FOUND.	NO. OF WORKED FLAKES.	WHERE FIGURED.
LI	Flake	F 369	I	I	Plate LXVIII.
LIII	Flakes	F 370, 371, 372	5	I	
LV	Flakes		5	I	
"	Worked knife	F 368	I		
"	Core		I		
"	Perforated flint	F 361	I		
LVII	Flake	F 364	I		
LVIII	Flake	F 363	I		
"	Implement (roughly chipped)	F 362	I	I	
LXVI	Flakes		2		
"	Burnt flint		I		Plate XCIII.
LXVII	Flake		I	I	
"	Scraper (roughly chipped)		I		
LXVIII	Flakes		3		
LXX	Flakes		2		
LXXI	Flakes		3		
LXXII	Flakes		6	2	
"	Core	F 383	I		
LXXIII	Flakes		7		
"	Nodule		I		
"	Burnt flint		I		F 384, Plate XCIII.
LXXIV	Flakes		5		
"	Knife (roughly chipped)		I		
"	Scraper	F 376	I		
LXXV	Flakes	F 384	7		
"	Scraper	F 378	I		
"	Burnt flints		2		
LXXVI	Flakes		8	I	
"	Small core		I		
LXXVIII	Flake	F 367	I	I	
"	Scrapers	F 365, 366	2		Plate XCIII, and Fig. 140, p. 373. Plate XCIII.
LXXX	Flakes	F 373	II	I	
LXXXI	Flakes		2		
LXXXII	Flake		I		
LXXXIII	Flakes		8	I	
"	Scrapers	F 374, 375, 377, 381, 382	5		
LXXXV	Worked knife	F 385			
LXXXIX	Flakes		2		
XC	Flakes		2		

It will be quite unnecessary to describe the whole of the 520 specimens included in this chapter; and we purpose only to give details of the implements which have been figured. Unless otherwise stated, the specimens described on pp. 606 and 607 are illustrated in Plate XCIII, scale one-half linear,

STONE CELTS.

S 18. Butt-end of a polished stone celt, of Neolithic type; cross-section bi-convex; fractured across the middle where it measures 72mm. ($2\frac{1}{8}$ ins.) in width and 40mm. in thickness; width at the sharp-edged butt 58mm. ($2\frac{1}{4}$ ins.). According to Dr. H. H. Thomas, petrographer to the Geological Survey, this fine grained stone is probably a silicified volcanic ashy sediment.

Found near the second group of hearths in Mound VI, 4½ft. w. of the c.p., 1896.

S 26. Polished stone celt, of Neolithic type, with squared butt-end of oval outline (35 by 10mm.); total length 115mm. ($4\frac{7}{16}$ ins.), max. width 48mm., max. thickness 23mm.; weight about 7ozs. avoirdupois; of bi-convex section in both directions. The celt was firstly shaped by chipping and finished by grinding and polishing, the latter process not being carried far enough to entirely obliterate the deeper facets of the chipping. Dr. Thomas reports that this fine grained stone is "practically a quartzite though originally it may have been more or less siliceous." He adds that "such stones as S 18 and S 26 are obtainable in North Wales, but no one can say definitely that these specimens actually came from there."

Found in the peat, 24½ft. N. of the c.p. of Mound XV, 1898.

ARROW-HEAD.

F 41. Small flint arrow-head, leaf-shaped, of bluish-grey colour; the tip deficient; length 24mm., max. width 16.5mm., max. thickness 2.2mm. It does not display the fine workmanship of the best Neolithic work.

Found near the border-palisading, 23½ft. N.W. of the c.p. of Mound XLIX, 1896.

Illustrated in Fig. 177.

SAW.

F 42. Double-edged saw of dark brown-coloured flint; it has a dorsal ridge, and the cross-section is triangular; one of the faces is represented by the outer crust of the flint; length 61.5mm., max. width 20mm.

Found 14ft. N.W. of the c.p. of Mound XLIX, 1894.

Illustrated in Plate XCIII, and in Fig. 177.

FLINT SCRAPERS.

F 47, F 49. Two well formed scrapers of pale grey colour. F 47 was found near the palisading, 39ft. S.S.E. of the c.p. of Mound V; F 49 in the same mound, 14ft. N. of the c.p., 1896.

F 59. Finely-worked scraper, of yellowish-grey colour, with crescentic edge, deeply bevelled. Found in the peat, 11ft. W.N.W. of the c.p. of Mound XXXVII, 1898.

F 374, F 377, F 381, F 382. Four scrapers, one, F 381, being of a long narrow form, with pronounced dorsal ridge. F 377 and F 382 are both of a slate-grey colour. All of them were found in Mound LXXXIII in 1906; F 374 was below the clay, 8ft. N.N.W. of the c.p. F 374 is illustrated in Fig. 140, p. 373; the others in Plate XCIII.

F 380. Half a well-formed scraper, broken through the middle. Found in Mound IX.

FLINT KNIVES, WORKED FLAKES, ETC.

F 18. Hollow scraper, with chipped recess.

F 53. Implement which takes the form of a roughly-shaped arrow-head, length 29.5mm. Found among the brushwood, 16½ft. S.W. of the c.p. of Mound IV, 1896.

F 43a, F 55, F 385. Three knives, the two former considerably worked. F 43a was found in Mound XLVIII, 6ft. N.W. of the c.p., 1894; F 55 on the surface of Mound III, 8ft. E. of the c.p., 1897; F 385 on clay in Mound LXXXV, 1907.

F 43a is in the Taunton Museum collection.

F 90. Implement with secondary chipping along both edges.

F 368. Worked implement, probably used as a knife; it has a prominent dorsal ridge which gives it a triangular cross-section. Found 13ft. S. of the c.p. of Mound LV, 1904.

Figured in Plate LXVIII.

F 43b, F 56. Two flakes with secondary chipping; the former found in Mound XLVIII, 6ft. N.W. of the c.p., 1894; F 56 on the third floor of Mound XXXVIII, 8½ft. E.S.E. of the c.p., 1898.

F 58, F 202, F 384. Well struck flakes; F 58 found 17½ft. N.E. of the c.p. of Mound XIV, 1898; F 384 in Mound LXXV, 1906.

F 58 is in the Taunton Museum collection.

HAMMER-STONES.

F 222. Hammer-stone of flint of an irregular rounded form, showing signs of hammering except where the crust of the flint is present.

F 379. Large hammer-stone of globular form, bearing signs of prolonged use and contact with fire, which to some extent accounts for its red and black colour and white patches. This is a siliceous nodule known as a "potato stone" from the Dolomitic Conglomerate (Triassic rock), probably from the beds of Draycot stone near Axbridge.

FLINT CORES.

F 45. Large core, found in the peat 24ft. N.N.W. of the c.p. of Mound XLIX, 1896.

F 48, F 383. Two small cores of pyramidal form. F 48 was found in the peat outside the palisading, 14ft. W.S.W. of the c.p. of Mound X, 1896; F 383 in Mound LXXII, 1906.

CHAPTER XXI.

MILLSTONES AND QUERNS.

By ARTHUR BULLEID, F.S.A.

THE earliest appliance for bruising grain was a spherical hammer or pounding-stone, and a bed-stone having a shallow depression in the upper surface. In the first place any suitable block of hard stone, rock, or boulder was selected for a lower stone, but preference would doubtless be given to a piece having a water-worn or natural hollow ; at the same time a small portable block or slab having this characteristic would of necessity be more highly valued and of greater convenience. In course of time from continual pounding and grinding the bed-stone became worn and cupped, until the depression approached mortar-like proportions. At this stage the globular-shaped pounding-stone would become inconvenient or useless, and it would be necessary either to discard the bed-stone or replace the crusher by another implement of greater length. The deeper mortar-like depression however would be found of greater utility for holding the grain, and the natural consequence was the selection of a pounder having a cone- or pear-shape. Spherical corn-crushers and mealing-stones are mentioned by Dr. Keller as having been discovered in the Swiss Lake Dwelling settlements of Nidau and Meilan associated with Neolithic implements. It was from this primitive apparatus of the stone ages, the development of which has been briefly outlined above, that the various types of pestle and mortar were evolved. Many spherical-shaped stones were found at the Lake-village measuring from 2 to $3\frac{1}{2}$ ins. in diameter, but although the chipped and battered surfaces undoubtedly point to hard and prolonged usage due to pounding, there is not sufficient evidence to justify their being classed as grain-crushers. They will therefore be more correctly described and considered under the heading of hammer-stones. Discoveries of pestles either of a club, pear, or cone shape, have been of frequent occurrence, the sites producing examples being fairly evenly distributed over the British Isles. In several instances the object is recorded as accompanying Neolithic implements, and one example was found by the side of a Roman cinerary urn. Amongst the examples of mealing-stones mentioned by the late Sir John Evans are some which

measure from $9\frac{1}{4}$ to 16 ins. in length,¹ but numerous examples of much smaller dimensions have been discovered. Among the stone implements from the Lake-village are two diminutive cone-shaped pestles, neither of which can, however, be associated with the process of grain-milling.

Among the milling appliances discovered at the Lake-village were examples of both saddle-stone and rotary mills. Of the former type there are eighteen examples,—eight upper and ten lower stones; and of the latter thirty-eight,—twenty-two upper and sixteen lower stones.

The saddle-shaped mill, so named from the supposed resemblance of the lower stone to the curved part of a saddle, was the first appliance for grinding as distinguished from the earlier contrivances employed for pounding grain. There appears, however, to be a type of hollow stone having an oval-shaped depression which seems to be an intermediate form between the cupped-hollow and the saddle-stone, and probably a step in the process of evolution.

The saddle-stone mill has been in general use throughout the world. It is associated with the prehistoric remains of nearly every country in Europe. It has been found in the pit-dwellings, inhabited caves, and crannogs of the British Isles, the lake-dwellings of Switzerland, in the caves and *terremare* of Italy, and in numerous localities in France, Germany and the Hellenic peninsula. In the south of Europe it has been found associated with implements of the Neolithic period. In Egypt the discovery of statuettes of women grinding has proved its use prior to 2300 B.C., from which time it has come down in an unbroken line to the present day. It is still employed by the aborigines of Africa, and occurs in Mexico and other parts of the American continent. In the British Isles it is pre-eminently the mill of the Bronze Age, although its use was continued into the Christian era, as is evidenced by a pair of stones having been found on an upper floor of a dwelling at the Lake-village. Several saddle-querns found on Ham Hill, South Somerset, are exhibited in Taunton Museum. Examples from Brittany and Cornwall bear close resemblances, and one from La Tourelle, near Quimper, in the former locality is ornamented with a rude moulding. Although this appears to be the only recorded instance from Europe, carved saddle-stones are of frequent occurrence in Mexico.

Thirty-eight specimens of rotary mill-stones or querns, either complete or fragmentary, were found in the Lake-village (Plate XCIV).

The term "quern" conveys an imperfect conception of its great antiquity. It appears in cognate form in the language of all the Teutonic races. As *Cweorn* or *Cwyrn* it occurs in Anglo-Saxon; in Dutch, *Keveern*; in Icelandic, *Kvern*; in Danish, *Qværn*; in Swedish, *Qvarn*. The Welsh *Chwyrn* signifies rapid motion,

1. "Stone Implements" (1897), 254, 255.

or whirl, which appropriately expresses the turning of a hand-mill when in active use.

At what date the rotary mill was introduced into the British Isles is a matter for conjecture: we can, however, state with certainty that it was in general use during the first century B.C., and that it continued in use until quite recently in Ireland and Scotland. The Rev. J. Graves procured from a Kilkenny peasant in 1850 a quern which was then actually in use.¹ Wilde mentions that so late as 1853 he purchased a quern which was in use in the neighbourhood of Clifden, Connemara.² It has been stated that hand-mills were still in common use in the Shetlands and Hebrides as late as 1882.

A rotary mill, omitting the pot-quern, consisted of an upper and lower stone of nearly equal diameter. The upper stone was rotated by means of a wooden handle. The lower stone often the heavier of the two, had a slightly conical or convex upper surface with a circular depression at the centre. This cup or socket hole varied from 1 to 3 ins. in depth, and held the spindle around which the upper stone revolved. The under surface of the upper stone was hollowed, the concavity fitting the convex milling surface of the lower. Passing through the entire thickness of the stone at the centre was a circular perforation, or hopper, about 3 ins. in diam., through which the grain was introduced to the milling surfaces. The upper stone was also perforated at the side or on the upper surface by a hole or groove for the reception of the handle.

The rotary mills are divisible into two well defined types, namely, the beehive and discoidal. The former are generally associated with objects of the pre-historic Iron Age, although a few examples have been found with objects of the Roman period. The latter were probably introduced by the Romans, and are distinctly associated with Romano-British remains of the Christian era. At the Late-Celtic settlement of Hunsbury, near Northampton, some 150 querns were discovered of a cone or beehive shape, the upper stones ranging from 5 to 12 ins. in height. All the rotary querns from the Lake-village were of the same type, but the upper stones were not so thick as some of the Hunsbury examples and the cone shape was therefore less pronounced.

In Somerset beehive-shaped querns have been found in several localities, the majority coming from Ham Hill (Taunton Museum).³ Others in the same museum were found at Clandown (Midsomer Norton),⁴ Tickenham Hill, and Capton (Stogumber); the latter is ornamented. In Shepton Mallet Museum an upper stone is exhibited having two handle holes at the side, and resembling in outline

1. *Arch. Journ.*, VII, 393.

2. Wilde's Catalogue (Stone), 104.

3. These have not yet been described in any detail.

4. *Proc. Som. Arch. Soc.*, LII, i, 68.

several of those found at Glastonbury. It was discovered in 1860 in a cutting during the construction of the railway between Wells and Shepton Mallet, and measures 14ins. in diameter and 7ins. in maximum height. The upper surface is slightly dished like Q 9 from the Lake-village. No associated finds are recorded with this specimen. At the Late-Celtic Camp at South Cadbury three upper stones were discovered by the late Rev. J. A. Bennett, all of which are beehive-shaped.¹ At Wookey Hole a pair of stones, the upper being beehive-shaped, was found in the Late-Celtic level (E), and a top stone, having similar characteristics, belonging to a second quern was discovered with other remains of the prehistoric Iron Age.

With reference to the discovery of beehive-shaped querns in other localities the following may be mentioned. In Devizes Museum, Q 41, is an upper stone of beehive form, measuring 15ins. in diameter and 7½ins. in height, which was found near Rybury Camp, Wilts. The handle-hole is oval in cross-section and cut horizontally with the side of the stone. Colchester Museum possesses five examples of beehive querns, all of which are of the low form and made of pudding-stone. In Peterborough Museum there is a cone-shaped upper stone similar to the high type from Hunsbury. Chingford Museum, Essex, contains one-half of an upper stone of low beehive form made of Hertfordshire pudding-stone. In the Guildhall Museum, London, there is a low beehive-shaped upper stone, 13ins. in diameter and 5ins. high, having the upper part of the hopper cupped; and another stone of the tall cone shape, 11½ins. in diameter and 7½ins. high. At Saffron Walden Museum there is a top stone of truncated cone shape, 10ins. in diameter and 7ins. high, having the upper part of the hopper cupped, and a beaded moulding round both the upper and lower margins. The under surface of this stone has a broad shallow groove running parallel to the circumference, a feature of rare and unusual occurrence. Besides the above, this museum contains seven top stones of the low beehive form, made of pudding-stone. A quern of beehive shape was found at Oakham, and another at Braunston in Rutlandshire.² In the Blackmore Museum, Salisbury, a small beehive-shaped quern is exhibited, made of pudding-stone, found in Cambridgeshire; the handle-hole is oval in cross-section. A much worn top-stone of beehive form was found in a Romano-British site at Hardham, Sussex.³ In Sheffield Museum there is a large truncated cone-shaped upper stone discovered on Hartle Moor, Derbyshire, in 1824, in association with a flat celt and other objects of the Bronze Age. Another cone-shaped upper stone is exhibited, but the locality is unknown. Two other specimens are of beehive form, one being found in the

1. *Proc. Som. Arch. Soc.*, LX, i, 95.

2. *V.C.H., Rutland*, Vol. I.

3. *Proc. Soc. Antiq. Lond.*, XXIII, 380.

neighbourhood of Howden, near Sheffield, the other on Stanton Moor, Middleton, Derbyshire, in 1848.

Professor Boyd Dawkins says the conical beehive-shaped querns found in various parts of Wales are of the same type as those of England and belong to the prehistoric Iron Age.¹ They occur amongst other places in the parish of Llanidan, Anglesey; one example is ornamented in the flamboyant style characteristic of Late-Celtic art throughout Britain and Ireland. Although several other examples of beehive-shaped querns ornamented with Late-Celtic designs are recorded, their discovery appears to be restricted to Wales.

In the majority of the Glastonbury specimens the handle-holes occur as cone-shaped perforations cut horizontally into the side of the stone to the depth of 2 or 3 ins., the cross-section being oval. As far as my observations have led me the above mentioned position and shape of the handle-hole apply generally to the querns of the prehistoric Iron Age, although doubtless many handle-holes may be found round in section. In several of the Lake-village specimens the handle was fixed in a wedge-shaped groove in the upper surface of the stone. The sides of the groove were cut with a slight tilt inwards from below upwards, giving the groove in cross-section somewhat of a dove-tailed appearance. In the disc-shaped querns of the Roman period and mills of a later date the handle-hole was circular and pierced the stone vertically near the outer margin.

DETAILED DESCRIPTION OF THE QUERNS FOUND IN GLASTONBURY LAKE VILLAGE.²

Q 1. The lower stone of a rotary quern; max. diam. 15½ ins., max. thickness 6½ ins. The milling surface is circular and convex, the margin being 1½ ins. below the level of the centre. The spindle hole is 2½ ins. in depth, and 2⅜ ins. wide across the mouth.

Found in the peat outside the palisading near the s. end of the Causeway, 96 ft. s.s.w. of the c.p. of Mound XLVII.

Geological formation :—Similar to Q 14.

Q 2. The lower stone of a rotary quern; max. diam. 12¾ ins., max. thickness 5¾ ins. The milling surface is convex, the margin being ¾ in. below the level of the centre, and is considerably worn and polished. The spindle hole is 2⅜ ins. in depth, and 2½ ins. in width across the mouth.

Found 6½ ft. s.w. of the c.p. of Mound XLVI.

Geological formation :—Old Red Sandstone.

Q 3. Several fragments of an upper stone belonging to a rotary mill, of the flattened beehive form.

Found 15 ft. n.e. of the c.p. of Mound XLIV.

Geological formation :—Old Red Sandstone.

1. *Arch. Cambrensis*, 6th ser., XII, 99.

2. The stones, with the exception of Q 34, were kindly examined geologically by Professor C. Lloyd Morgan, F.R.S.

Q 4. Fragment of an upper stone of a rotary quern ; max. length $8\frac{1}{4}$ ins., max. width $6\frac{1}{4}$ ins., max. thickness 2ins. The stone must have been of light weight and the fragment shows no signs of either the handle or central hole.

Found 11ft. N.E. of the c.p. of Mound XLIV.

Geological formation :—Old Red Sandstone.

Q 5. Small fragment of an upper stone of a rotary quern. Found 12ft. N. of the c.p. of Mound LXIII.

Geological formation :—Probably Old Red Sandstone.

Q 6. Fragment of an upper stone of a rotary quern ; max. thickness 5ins.

Found 19ft. E.S.E. of the c.p. of Mound XXII.

Geological formation :—Similar to Q 14.

Q 7. Upper and lower stones of a saddle-shaped mill. The milling surface of the upper stone is slightly concave lengthways, and convex from side to side. Max. length 13ins., max. width $5\frac{1}{2}$ ins. ; max. thickness 2ins.

The milling surface of the lower stone is covered with small pecked depressions which had been retooled. The concavity of the surface is $\frac{3}{4}$ in. in depth. Max. length 19ins., max. width $11\frac{1}{2}$ ins., max. thickness $3\frac{3}{4}$ ins.

Found 7ft. S.E. of the c.p. of Mound XLIV.

Geological formation :—Old Red Sandstone (upper and lower stones).

Q 8. The lower stone of a rotary quern. The stone is of irregular shape being chipped and broken at the margin. The spindle hole measured 2 to $2\frac{1}{2}$ ins. in diam. at the level of the milling surface, and, owing to the broken condition of the under surface of the stone, passes through its entire thickness.

The margin of the milling surface was $2\frac{3}{8}$ ins. below the level of the centre of the stone. Max. diam. 14ins., max. thickness $4\frac{1}{4}$ ins.

Found 11 $\frac{1}{2}$ ft. W. of the c.p. of Mound XLII.

Geological formation :—Similar to Q 14.

Q 9. The upper stone of a rotary quern, broken in half when discovered. The fracture had taken place through the weakest diam. of the stone, *i.e.*, where it is perforated at the side for the handle. This is the largest and the most important milling-stone discovered in the Village. It was doubtless much valued for attempts at mending had been carried out by dowelling the fractured surfaces together, two dowel-holes having been cut in the face of each half in exactly corresponding positions. A second handle-hole was made at a distance of a quarter of the circumference from the first. Although the stone was used in its broken state, there is nothing externally to show how the two portions were bound together. The stone is of the flattened beehive form, well shaped, and bi-concave in section, the entire stone being covered with tooling-marks. The outer margin of the milling surface is bevelled.

Max. diam. $16\frac{1}{4}$ ins. ; max. diam. of milling surface 15ins. ; max. diam. across the top $10\frac{1}{4}$ ins. ; max. thickness measured $2\frac{3}{4}$ ins. from the ext. margin of the milling surface 7ins. ; max. thickness at the margin of central hole or hopper $6\frac{1}{2}$ ins. ; diam. of the hopper at upper surface 4ins. ; diam. of hopper at milling surface $4\frac{1}{4}$ ins. ; diam. of hopper at the middle $4\frac{3}{4}$ ins. The hopper was slightly barrel-shaped.

Handle-hole i is oval-shaped, and the lower margin of the hole was 3ins. above the level of the milling surface. The hole slopes slightly downwards towards the milling surface. Dimensions :—Width $2\frac{1}{4}$ ins., height $1\frac{3}{8}$ ins., depth $2\frac{7}{8}$ ins.

Handle-hole ii is rectangular, and the lowest angle of the hole is $2\frac{7}{8}$ ins. above the margin of the milling surface. Dimensions :—2ins. square at surface of stone, depth 2ins.

The dowel-holes are rectangular,— $1\frac{1}{4}$ ins. square and the same in depth.

Found 13ft. s. of the c.p. of Mound LXII.

Geological formation :—Old Red Sandstone.

Figured in Plate XCIV.

Q 10. The upper stone of a rotary quern, much worn and broken. The upper surface is rough and uneven. The central hole or hopper is circular, 4ins. in diam. across the upper margin, $2\frac{1}{4}$ ins. in diam. at the milling surface. The handle-hole, placed at the side of the stone, is broken, but is oval-shaped. Dimensions of handle-hole :—Max. diams. at surface $2\frac{1}{4}$ by $1\frac{3}{4}$ ins., length $2\frac{3}{4}$ ins. The inner end of the hole is rounded, the diams. measuring 1 by $\frac{3}{4}$ in.

Found 13ft. s. of the c.p. of Mound XLIV.

Geological formation :—Old Red Sandstone.

Q 11. Fragment of a small lower stone of a rotary quern ; max. diam. about 13ins., max. thickness $3\frac{1}{2}$ ins.

Found 9 $\frac{1}{2}$ ft. N.N.E. of the c.p. of Mound IX.

Geological formation :—Similar to Q 14.

Q 12. Fragment of a small upper stone of a rotary quern ; diam. about 13ins. The milling surface is concave, well worn, with a smooth bevelled margin. The handle hole, which is placed at the side of the stone, extends into the central hopper, and is $2\frac{3}{8}$ ins. in diam. at the surface.

Found 18ft. N.N.W. of the c.p. of Mound LXIV.

Geological formation :—Similar to Q 14.

Q 13. The upper stone of a rotary quern, having a broken handle-hole and a large chip off the side. It was probably in use after the above-mentioned damage had taken place, for a groove has been cut in the upper surface of the stone for fixing a handle. The milling surface is considerably worn and concave,—the hollow $2\frac{1}{8}$ ins. in depth below the level of the margin. The upper surface is slightly cupped towards the hopper which varied from 3 to $3\frac{3}{8}$ ins. in diam. Max. diam. of stone 16ins., max. thickness 5ins., thickness of stone at central hole $2\frac{7}{8}$ ins.

The broken handle-hole is situated at the side of the stone near the milling surface ; the inner part of the hole had been worn through in the process of grinding and was the cause of the fracture. Dimensions of handle-hole :—At surface of stone the diams. measured $2\frac{5}{8}$ by $1\frac{1}{4}$ ins. ; depth $2\frac{3}{8}$ ins. The groove for the handle on the upper surface tapers and has nearly vertical sides. Dimensions :—Length $3\frac{3}{8}$ ins., max. width at margin $1\frac{3}{4}$ ins. ; the inner end of the groove is rounded and 1in. in width.

Found 16ft. N.W. of the c.p. of Mound LXVII.

Geological formation :—Similar to Q 14.

Figured in Plate XCIV.

Q 14. The lower stone of a rotary quern, in section slightly conical. The milling surface is polished in places from use, but elsewhere roughly pitted with natural depressions. The under surface is roughly flattened, and the outer surface shows chipping and tooling. The difference in the level of the centre and margin of the milling surface is $\frac{7}{8}$ in. Dimensions of stone :—Max. diam. $13\frac{3}{4}$ ins., max. thickness $4\frac{1}{2}$ ins. Dimensions of spindle hole :—Max. diam. at surface 2ins., max. depth $2\frac{3}{4}$ ins.

Found 1 $\frac{1}{2}$ ft. N.N.W. of the c.p. of Mound XXXI.

Geological formation :—Lower secondary silicified rock, containing fossils, probably procured from the beds of shore lias in neighbourhood of the Mendip Hills, near Croscombe,

Figured in Plate XCIV.

Q 15. The lower stone of a rotary quern. The milling surface is convex, well worn and polished; the margin is $2\frac{3}{8}$ ins. below the level of the central portion of the stone. The measurements of the spindle hole are, depth 2ins., width at surface $1\frac{1}{2}$ ins.

Found 4ft. below the surface of the peat outside the palisading, and 27ft. E. of the c.p. of Mound LVII.

Geological formation :—Old Red Sandstone.

Figured in Plate XCIV.

Q 16. A fragment of an upper stone of a rotary quern of the flattened beehive form, much cracked by fire. The under concave surface is well worn, smooth and polished in places; max. thickness 4ins.

Found $3\frac{1}{2}$ ft. N. from the centre of Hearth i, Mound LVIII.

Geological formation :—Probably Old Red Sandstone.

Q 17. The lower stone of a saddle-shaped mill of irregular shape. The milling surface is considerably worn; the depth of the concavity is $\frac{1}{2}$ in. Max. length 18ins., max. width 14ins., max. thickness $3\frac{3}{4}$ ins.

Found near the border of the Village, $31\frac{1}{2}$ ft. S.S.E. of the c.p. of Mound V.

Geological formation :—Old Red Sandstone.

Q 18. The lower stone of a saddle-shaped mill. The surface is much worn; concavity $1\frac{3}{4}$ ins. in depth. Max. length 15ins., max. width 11ins., max. thickness 8ins.

Found near the border of the Village, $26\frac{1}{2}$ ft. S. of the c.p. of the Mound V.

Geological formation :—Old Red Sandstone.

Q 19. Two fragments of an upper stone of a rotary quern.

Found 21ft. E.S.E. of the c.p. of Mound V.

Geological formation :—Probably Old Red Sandstone.

Q 20. A fragment of a lower stone of a rotary quern.

Found 10ft. S. of the c.p. of Mound VI.

Geological formation :—Probably Old Red Sandstone.

Q 21. A much weathered and worn upper stone of a rotary quern of low beehive shape. The upper surface is cupped and $12\frac{1}{2}$ ins. in diam.; the depth of the concavity is $\frac{3}{4}$ in. The lower or milling surface is concave and considerably worn. There is a broken handle-hole at the side and a second in the upper surface in the form of a conical groove with nearly vertical sides, measuring $3\frac{1}{2}$ ins. in length and $1\frac{3}{8}$ ins. max. width. The dimensions of the stone are :—Max. diam. 16ins., max. thickness $4\frac{1}{8}$ ins. The central hole or hopper is 4ins. in diam.

Found $5\frac{1}{2}$ ft. N. of the c.p. of Mound IV.

Geological formation :—Similar to Q 14.

Q 22. A large and heavy upper stone of a rotary quern, of low beehive shape. The upper surface is uneven, water-worn, showing signs of the action of fire. The stone is roughly circular, and bears evidence of chipping in places on the outer surface. The milling surface shows tooling-marks, but is much worn. Depth of concavity $1\frac{5}{8}$ ins. Dimensions :—Max. diam. 18ins., max. thickness $5\frac{5}{8}$ ins. The hopper measures $4\frac{1}{2}$ ins. in diam. at the upper surface, $3\frac{1}{4}$ ins. at the lower.

The handle-hole is placed at the side of the stone, oval in shape but incomplete; a piece is broken away between it and the milling surface. The dimensions are as follows :—Horizontal diam. $2\frac{1}{2}$ ins., vertical diam. $1\frac{5}{8}$ ins., depth $2\frac{1}{4}$ ins.

Found $10\frac{1}{2}$ ft. W. of the c.p., Floor i, Mound V.

Geological formation :—Probably Old Red Sandstone.

Q 23. Part of a lower stone of a saddle-shaped mill. The milling surface is considerably worn. Dimensions :—Max. length $9\frac{1}{2}$ ins., max. width 7ins., max. thickness $3\frac{1}{4}$ ins.

Locality unrecorded.

Geological formation :—Old Red Sandstone.

Q 24. About one-half of a lower stone of a saddle-shaped mill. Max. length when complete about 17ins., max. width 10ins., max. thickness $4\frac{1}{2}$ ins.

Locality unrecorded.

Geological formation :—Old Red Sandstone.

Q 25. Large lower stone of a saddle-shaped mill ; upper surface well tooled and hollowed, concavity $\frac{1}{8}$ in. in depth. Margins of surface smooth and polished. Max. length 18ins., max. width $12\frac{3}{4}$ ins., max. thickness $7\frac{5}{8}$ ins.

Found 13ft. E.S.E. of the c.p. of Mound VI.

Geological formation :—Old Red Sandstone.

Figured in Plate XCIV.

Q 26. One-half of a lower stone of a rotary quern, fractured in the making. The upper surface is flat and has never been used for milling. The spindle-hole, which is incomplete and shallow, has the following dimensions :—Diam. 3ins., depth $1\frac{1}{4}$ ins. The measurements of the stone are :—Max. diam. $13\frac{1}{4}$ ins., max. thickness $6\frac{1}{2}$ ins. The ext. surface of the stone shows coarse tooling-marks.

Found 2ft. N.E. of the c.p. of Mound V.

Geological formation :—Old Red Sandstone.

Q 27. The lower stone of a rotary quern in the making. The upper surface is nearly flat, and pecked and roughened in places. Max. diam. $14\frac{1}{2}$ ins., max. thickness $3\frac{7}{8}$ ins.

Found in the peat 17ft. S.E. of the c.p. of Mound V.

Geological formation :—Old Red Sandstone.

Figured in Plate XCIV.

Q 28. The lower stone of a saddle-shaped mill ; max. length $13\frac{1}{4}$ ins., max. width 7ins., max. thickness 3ins.

Found in 1896. Locality unrecorded.

Geological formation :—Old Red Sandstone.

Q 29. Partly-made upper stone of a rotary quern ; surfaces very roughly tooled.

Found $5\frac{3}{4}$ ft. E. of the c.p. of Mound IV, near the hearth belonging to Floor i.

Geological formation :—Similar to Q 14.

Q 30. The lower stone of a saddle-shaped mill. Milling surface slightly concave and smooth ; concavity $\frac{7}{16}$ in. in depth. Max. length $17\frac{1}{4}$ ins., max. width $12\frac{1}{2}$ ins., max. thickness 3ins.

Found 8ft. E.N.E. of the c.p. of Mound IV, on Floor iv.

Geological formation :—Old Red Sandstone.

Q 31. Small fragment of an upper stone of a saddle-shaped mill ; milling surface well worn. Max. length 6ins., max. width $5\frac{7}{8}$ ins., max. thickness $2\frac{3}{8}$ ins.

Found in the black earth $13\frac{3}{4}$ ft. N. of the c.p. of Mound II.

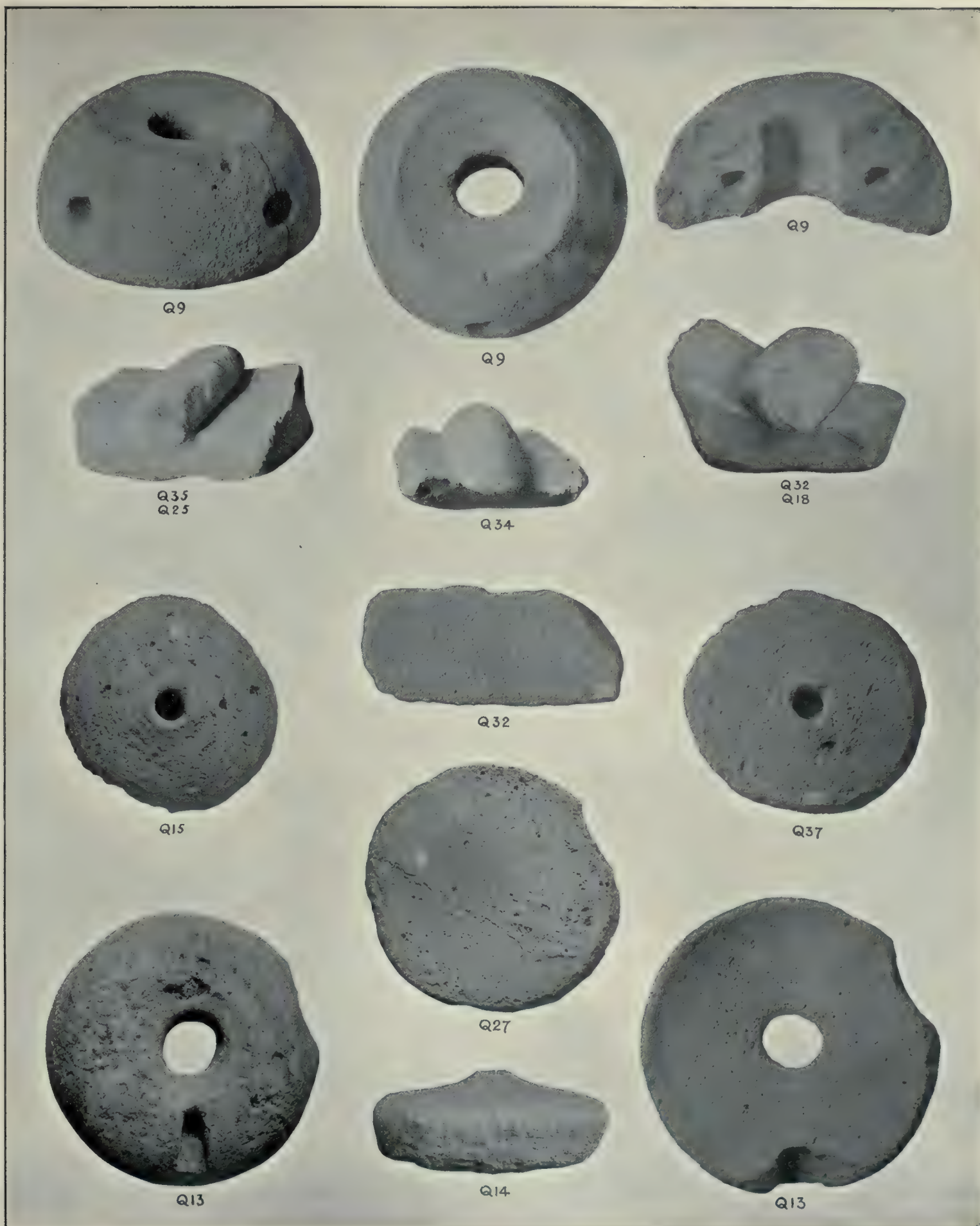
Geological formation :—Old Red Sandstone.

Q 32. The upper stone of a saddle-shaped mill ; milling surface well worn. Max. length $13\frac{1}{8}$ ins., max. width 6ins., max. thickness $2\frac{5}{8}$ ins.

Found 15ft. S.S.W. of the c.p. of Mound XVIII.

Geological formation :—Old Red Sandstone.

Figured in Plate XCIV.



SADDLE-SHAPED MILL-STONES AND QUERNS, GLASTONBURY LAKE VILLAGE.

Q 33. One-half of a lower stone of a rotary quern. After being broken the stone was evidently used for polishing or sharpening metal tools, for the milling surface is scored with a number of grooves. The outer surface of the stone is grooved horizontally. This was done presumably after the fracture had taken place with a view to binding the two pieces together. Max. diam. $13\frac{1}{2}$ ins., max. thickness $5\frac{3}{8}$ ins.

Found $14\frac{1}{2}$ ft. N.E. of the c.p. of Mound XI.

Geological formation :—Old Red Sandstone.

Q 34. The upper and lower stones of a saddle-shaped mill. The upper stone, made from a water-worn pebble, is bi-convex in transverse section, the curves being unequal. The longitudinal section is concavo-convex. The milling surface is worn and smooth, and along the margins polished. The concavity of the milling surface is $\frac{1}{4}$ in. in depth. Dimensions :—Max. length 12ins., max. width $6\frac{3}{8}$ ins., max. thickness $3\frac{1}{4}$ ins.

The lower stone is of the same geological formation as the upper. The milling surface is worn and polished, the concavity being $\frac{3}{4}$ in. in depth. Dimensions :—Max. length 15ins., max. length of milling surface $13\frac{1}{4}$ ins., max. width $9\frac{3}{4}$ ins., max. thickness $3\frac{3}{8}$ ins.

Found 6ft. W.N.W. of the c.p. of Mound XXXVIII, under the clay in the foundation.

Figured in Plate XCIV

Geological formation :—The lower stone has been kindly examined by Dr. H. H. Thomas, of the Museum of Practical Geology, London, who reports as follows :—

"In the hand the rock appears as a moderately coarse-grained igneous rock of two obvious constituents in about equal proportions; the one, dirty pink felspar, the other, dark green (ferromagnesian mineral).

"Microscopic investigation proves that the rock has granitic texture and is composed of decomposed orthoclase, microperthite, albite, a little quartz, large plates of decomposed biotite, occasional flakes of muscovite, abundant accessory apatite in fairly large prisms, and a fair amount of leucoxene in plates pseudomorphous after ilmenite. There is no tendency on the part of the quartz and felspar to micrographic intergrowths.

"The rock would find its place with the *fine grained mica syenites*, for it is certainly intermediate in composition and could only be classed with the granites with difficulty.

"I am afraid that I cannot suggest a source for this boulder. I have compared it with rocks from British districts and also from the Channel Isles and the North of France, but cannot find any rock with which it compares at all closely. The same difficulty is met with when we try to run down the smaller stones of igneous character found at Stonehenge and also the various boulders which lie scattered over the alluvial flats of the Hampshire coast. It is probable that they all form part of the same story, but until work has been done on a large collection I fear there is little chance of the source being determined unless some highly characteristic rock is met with which would give some idea of the direction of transport."

Subsequently in comparing a specimen from the "syenite" of Hestercombe, Taunton, with the millstone, Dr. Thomas says :—

"I have compared the specimens of these two rocks at my disposal and have come to the conclusion that though there is some slight superficial resemblance they are quite distinct.

"The Hestercombe rock is generally finer in texture, richer in ferromagnesian constituents and more brown than red in colour. The microscope shows certain points of similarity such as the nature of the felspar, the segregation of apatite, etc., but the excess of ferromagnesian mineral in the Hestercombe rock as also the character of its decomposition products points to a fundamental difference.

"When I say that the rocks are distinct, it must be remembered that I am basing my opinion solely on specimens in this office and I would not therefore preclude the possibility of a rock similar to the Glastonbury specimen occurring in the Hestercombe mass. All the same I think it very doubtful that the Glastonbury rock will ever be matched in the Hestercombe district."

Q 35. A well worn upper stone of a saddle-shaped mill. The whole of the stone is

indented with tool-marks, with the exception of the milling surface which is smooth and polished in places. The concavity of the milling surface is $1\frac{1}{2}$ ins. in depth. Dimensions:—Max. length $15\frac{1}{2}$ ins., max. width $5\frac{1}{2}$ ins., max. thickness $5\frac{3}{8}$ ins.

Found 13 ft. s. of the c.p. of Mound XXXVII.

Geological formation:—Old Red Sandstone.

Figured in Plate XCIV.

Q 36. Small fragment of an upper stone of a saddle-shaped mill.

Found 10 ft. s. of the c.p. of Mound XXXVII.

Geological formation:—Old Red Sandstone.

Q 37. The lower stone of a rotary quern. The milling surface generally is rough, but in places near the margin the stone is smooth and polished. The convexity of the upper surface is about 1 in. The spindle-hole is circular and measures $1\frac{1}{4}$ ins. in diam. and depth. Dimensions:—Max. diam. $13\frac{3}{4}$ ins., max. height $6\frac{3}{4}$ ins.

Found 10 ft. s. of the c.p. of Mound XXXV.

Geological formation:—Similar to Q 14.

Figured in Plate XCIV.

Q 38. The lower stone of a saddle-shaped mill. The milling surface is slightly concave and worn; the concavity of the long diam. is $\frac{1}{4}$ in. All the surfaces of the stone show pecked tool-marks. Dimensions:—Max. length $12\frac{1}{2}$ ins., max. width $10\frac{1}{4}$ ins., max. thickness $3\frac{3}{4}$ ins.

Found $8\frac{1}{2}$ ft. w.s.w. of the c.p. of Mound XXXII.

Geological formation:—Old Red Sandstone.

Q 39. A well made lower stone of a rotary quern. The milling surface is convex, worn and polished; the convexity of the stone is $1\frac{1}{4}$ ins. The under surface is flat. The spindle-hole has the following measurements:—Max. diam. at the top $2\frac{1}{4}$ ins., max. depth $2\frac{3}{8}$ ins. Dimensions of the stone:—Average diam. across the top $12\frac{1}{4}$ ins., max. thickness $6\frac{1}{8}$ ins.

Found on Floor i, $6\frac{1}{2}$ ft. N.E. of the c.p. of Mound LV.

Geological formation:—Old Red Sandstone.

Q 40. The upper stone of a saddle-shaped mill. The milling surface is slightly concave longitudinally, and bi-convex in cross-section. Dimensions:—Max. length $11\frac{1}{4}$ ins., max. width $5\frac{3}{4}$ ins., max. thickness 2 ins.

Found near the S.E. margin of Mound LIV.

Geological formation:—Old Red Sandstone.

Q 41. Fragment of an upper stone of a rotary quern. The upper surface was smooth and water-worn; the milling surface much indented with tool-marks. Max. thickness of stone $3\frac{1}{2}$ ins.

Found 14 ft. N.W. of the c.p. of Mound LIII.

Geological formation:—Old Red Sandstone.

Q 42. A well made lower stone of a rotary quern. The milling surface generally is covered with indented tool-marks, but the margin is smooth and polished. The convexity of the stone is $\frac{3}{4}$ in. Dimensions:—Max. diam. 14 ins., max. thickness 5 ins. The spindle-hole is $1\frac{3}{4}$ ins. wide, and $1\frac{7}{8}$ ins. deep.

Found on the surface of Floor i, 5 ft. N.E. of the c.p. of Mound LXIX.

Geological formation:—Old Red Sandstone.

Q 43. Fragment of an upper stone of a rotary quern; max. thickness $5\frac{1}{2}$ ins.

Found 10 ft. s. of the c.p. of Mound LXXX.

Geological formation:—Old Red Sandstone.

Q 44. A large piece of a lower stone of a rotary quern ; max. thickness $5\frac{1}{4}$ ins. The spindle-hole measures $1\frac{3}{4}$ ins. in diam., and $1\frac{1}{4}$ ins. in depth.

Found $8\frac{1}{2}$ ft. s.w. of the c.p. of Mound LXXX.

Geological formation :—Old Red Sandstone.

Q 45. The upper stone of a rotary quern of low beehive form, broken in two. The upper surface is convex, rough and uneven ; the milling surface concave and considerably worn. The hopper is roughly circular and measures $3\frac{1}{2}$ ins. in diam. The stone has two handle-holes,—one a wedge-shaped groove cut in the upper surface of the stone, the other oval-shaped cut in the side of the stone low down near the milling surface. Dimensions :—Max. diam. 14 ins., max. thickness $5\frac{1}{2}$ ins.

Found $22\frac{1}{2}$ ft. s.e. of the c.p. of Mound LXXXI.

Geological formation :—Similar to Q 14.

Q 46. Nine fragments of an upper stone of a small rotary quern of low beehive form. The pieces appear to have been burnt. Dimensions :—Max. diam. 11 ins., max. thickness $5\frac{1}{4}$ ins.

Found 16 ft. s. of the c.p. of Mound LXXI.

Geological formation :—Old Red Sandstone.

Q 47. The upper stone of a rotary quern broken into about thirty pieces.

Found 5 ft. s. of the c.p. of Mound LXXI.

Geological formation :—Old Red Sandstone.

Q 48. Large fragment of a lower stone of a rotary quern. The stone has been used twice, as both the upper and lower surfaces are convex, with spindle-holes. The axes of the holes are not in line. Dimensions :—Max. diam. (approx.) 12 ins., max. thickness $7\frac{5}{8}$ ins.

Found $10\frac{3}{4}$ ft. n.n.w. of the c.p. of Mound LXXXIII.

Geological formation :—Old Red Sandstone.

Q 49. Small fragment of an upper stone of a rotary quern. The upper surface is well tooled ; the lower smooth and polished at the margin. Max. thickness $2\frac{3}{4}$ ins.

Found $12\frac{1}{2}$ ft. s.e. of the c.p. of Mound LXXII.

Geological formation :—Probably Old Red Sandstone.

Q 50. A large upper stone of a rotary quern of low beehive form. The upper surface is slightly cupped and roughly tooled. The milling surface is concave, the concavity being $1\frac{1}{4}$ ins. in depth. The handle-hole is oval-shaped and placed at the side of the stone, 2 ins. below the level of the upper surface. The hole is $3\frac{1}{2}$ ins. in depth. Dimensions of stone :—Max. diam. 15 ins., max. thickness 6 ins. Diam. of hopper $3\frac{3}{4}$ ins.

Found on Floor iii, 13 ft. e.n.e. of the c.p. of Mound LXXIV.

Geological formation :—Similar to Q 14.

Q 51. The upper stone of a large rotary quern, broken into five fragments. The stone is very roughly made and tooled. The handle-hole is placed at the side of the stone 3 ins. below the level of the upper surface. The hopper is $4\frac{1}{2}$ ins. in diam. Dimensions of stone :—Max. diam. $15\frac{1}{2}$ ins., max. thickness 7 ins.

Found $13\frac{1}{2}$ ft. e.n.e. of the c.p. of Mound LXXIV, and 1 ft. n. of Q 50.

Geological formation :—Similar to Q 14.

Q 52. A large and heavy lower stone of a rotary quern, broken into four fragments. The upper convex surface is roughly tooled, and has evidently been much used, for the surface is worn down, leaving a slight ring round the spindle-hole. Dimensions :—Max. diam. $15\frac{1}{2}$ ins., max. thickness 9 ins.

Found $10\frac{1}{2}$ ft. e. of the c.p. of Mound LXXIV.

Geological formation :—Similar to Q 14.

Q 53. Small top stone of a saddle-shaped mill of quadrangular section. The milling surface shows tooling. Dimensions :—Max. length $9\frac{7}{8}$ ins., max. width $6\frac{1}{4}$ ins., max. thickness 4ins.

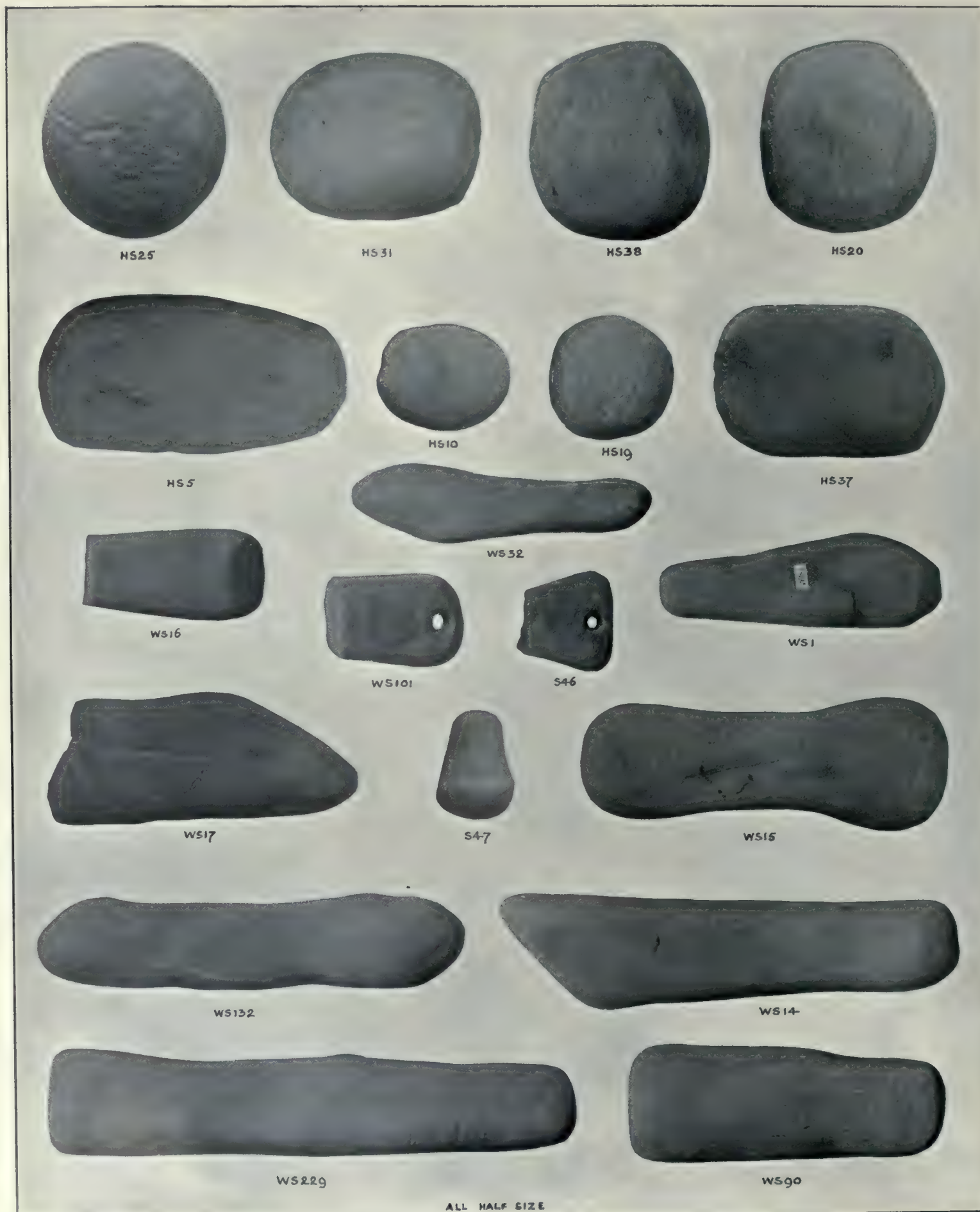
Found $8\frac{1}{2}$ ft. E.N.E. of the c.p. of Mound LXXXIV.

Geological formation :—Old Red Sandstone.

Q 54. A small fragment of an upper stone of a rotary quern, showing part of an oval-shaped hole for a side-handle.

Found in Mound LII.

Geological formation :—Old Red Sandstone.



WHETSTONES AND OTHER OBJECTS OF STONE, GLASTONBURY LAKE VILLAGE.

CHAPTER XXII.

OTHER STONE OBJECTS.

By ARTHUR BULLEID, F.S.A.

I. PESTLES.

Two small pestles were found at the Lake-village, and from their shape and size we assume they were used for grinding pigments. Both are smooth water-worn pebbles, such as might be found in the gravel beds in the neighbourhood of Godney or on the Severn shore.

The larger of the two (S 47, Plate XCV) is of pyramidal shape and measures $1\frac{7}{8}$ ins. in height. In cross-section it is roughly oval; maximum diameter $1\frac{1}{2}$ ins. The larger end is capped by a disc of quartz averaging $\frac{1}{2}$ in. thick, and the flattened under-surface is smooth and polished. The smaller extremity shows a distinct worn and roughened facet, evidently produced by pounding.

S 48 is a diminutive implement of pyramidal shape, oval in cross-section, measuring $\frac{3}{4}$ in. in height; the maximum diameter of the larger end $\frac{7}{8}$ in. Both ends are capped with discs of quartz, and it is divided across the middle by a thin band of the same formation. The pounding or grinding surface is smooth and highly polished.

II. WHETSTONES AND HAMMER-STONES.

Some three hundred whetstones and hammer-stones were found during the excavations. The majority of the whetstones are smooth flat water-worn pieces of stone or pebbles, of various shapes, measuring from 2 to 9 ins. in length, and very similar to the pebbles to be seen on the Severn shore near Steart.

Several specimens have been examined by Messrs. H. H. Thomas, sc.D., and J. Allen Howe, B.Sc., who report them to be formed of a felspathic and micaceous grit and a hard fine-grained sandy and micaceous mudstone or shale originating from the Carboniferous beds; they are probably drift-pebbles.

Very few examples appear to have been shaped intentionally, but two examples are perforated with a circular hole near one end (S 46 and WS 101, Plate XCV). The holes taper towards the middle and have been produced by boring both

surfaces of the stone. A considerable number of the whetstones bear evidence of use by having one or more smooth facets (WS 1, WS 16, Plate XCV). Many are worn in hollows along the margins, and sometimes the surfaces are ground down so as to leave the margin sharp and angular (WS 90, Plate XCV). The edges of other stones are frequently grooved or notched transversely, and less often the surfaces are marked longitudinally in the same way (WS 15, WS 17, Plate XCV). Some of the stones or facets were highly polished as if they had been used for burnishing.

Hammer-stones and pounders are either spherical stones or oblong pebbles measuring from 2 to 4 ins. in diam. In some specimens the surfaces are distinctly faceted (HS 5, HS 20, Plate XCV); in others the entire surface is pecked and indented (HS 19, HS 25, Plate XCV). The pebble stones are generally of oblong shape and much battered and splintered at the ends (HS 37, Plate XCV). Of the eight selected samples examined by Messrs. Howe and Thomas, four are quartzites, one is a felspathic grit, one a very fine-grained compact grit, one of chert, and one of flint.

III. COUNTERS OR CALCULI.

A considerable number of small flattened pebbles varying from $\frac{3}{4}$ to $1\frac{1}{8}$ ins. in diameter was found distributed throughout the Village. The stones were of various colours, and generally had a smooth and polished surface. No doubt many of them were used as counters in some game, for groups were discovered at three separate places, one of these being associated with dice (p. 409).

With reference to the groups, S 6 numbered twelve specimens and was found 5 ft. s.w. of the c.p. of Mound XXIV; S 16, consisting of nineteen pebbles, was discovered $4\frac{1}{2}$ ft. s.w. of the c.p. of Mound VII; and S 21, the largest collection, consisting of twenty-three pebbles, was found on the fourth floor of Mound IV, $11\frac{1}{2}$ ft. s. of the c.p. (Plate XC). Among the many other specimens collected singly S 31, S 32, S 33, were found in Mound LVIII, two of which are in the British Museum and the third in Taunton Museum.

Several counters similar to those found at Glastonbury were discovered in the Late-Celtic layer in Wookey Hole Cavern by Mr. Balch and are exhibited in Wells Museum.¹

One pebble similar to the above mentioned was found in Killings Knap Quarry, Stratton on the Fosse, Somerset, associated with Romano-British pottery and other remains of that period (1904).²

Some smooth flat pebbles well polished, "like counters," measuring from $\frac{1}{2}$ to $\frac{5}{8}$ in. in diameter, were found at Ty Mawr in Holyhead Island in 1868.³

1. "Wookey Hole" (1914), 106-107, and Plate XX.
2. *Downside Review*, XXIII, Plate i, fig. 8, p. 310.
3. *Arch. Journ.*, XXVI, 306.

IV. INCISED STONE.¹

S 41. Small slab of hard and very fine-grained sandy and micaceous mudstone or shale, with flat faces and of quadrangular transverse section; max. thickness, 13.3mm.; max. length, 110mm. (4 $\frac{5}{16}$ ins.); max. width, 78mm.; with rounded and bevelled edges at top and bottom. On one face oblique incisions occur, as if the stone had been used for sharpening purposes; but the peculiarity of the object is that it has been roughly scratched with irregular squares, covering both faces, in chess-board fashion, as shown in Fig. 178. Its use is not known, and

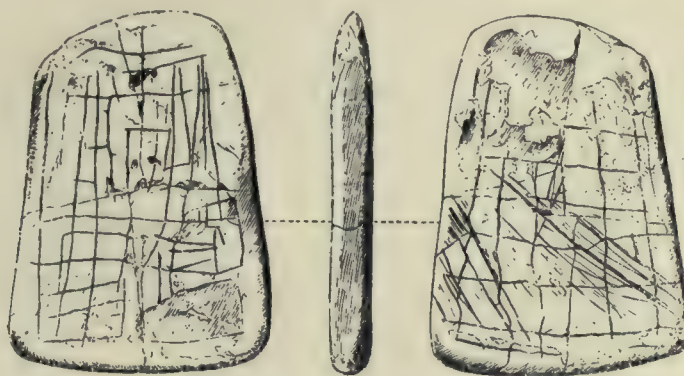


FIG. 178.—S 41, SMALL SLAB OF FINE-GRAINED STONE WITH AN INCISED CHEQUERED PATTERN, GLASTONBURY LAKE VILLAGE.

although it has been suggested that it might have been used for some game, the "squares" are so irregular and indefinite that such a purpose can only be vaguely surmised.

Found in four pieces (now joined) of about equal size, on a thin layer of clay on the s. side of Mound LXXX, 1905.

Mr. Ludovic McL. Mann states that a stone plaque, incised identically with irregular squares, was found in 1903 in a cist at Portpatrick. A stone object of somewhat similar form, but unscratched, was found by the Hon. W. O. Stanley at Pen-y-Bonc, Holyhead Island.² Several polished stones with scratched markings on them were found at Lagozza, Province of Milan; two are scored with a rough diamond pattern.³ Such stones, but larger, are said to have been used for ceremonial purposes by certain Hindu tribes.

V. POT-BOILERS.

Many so-called pot-boilers were discovered in the Village. They were usually more or less rounded lumps of water-worn sandstone measuring from 3 to 4 $\frac{1}{2}$ ins.

1. The writer is indebted to Mr. H. St. George Gray for this note.

2. *Arch. Journ.*, XXVI, 321, and Plate v, fig. 20.

3. *L.D. of E.*, 215, nos. 11, 12.

in diameter, bearing decided evidence of the action of fire. On several occasions these stones were found on the floors of dwellings in the vicinity of the hearths, and not a few hearths appeared to have been paved with them. In three instances, viz., Dwelling-mounds XVIII, XXIII, and XLIV, a small heap was found at the right-hand or south side of the entrance pavement, each group consisting of some twenty-five specimens.

VI. WORKED STONE USED IN METALLURGY.

S 1. About one-half of a disc-shaped stone with flattened surfaces and straight sides, bearing evidence of the action of great heat.

The stone has the following dimensions :—Max. length $7\frac{5}{8}$ ins., max. thickness $2\frac{1}{2}$ ins., max. width $3\frac{1}{2}$ ins. ; in its complete state it was $7\frac{5}{8}$ ins. long by $5\frac{3}{4}$ ins. wide. Passing along the side midway between the margins of the upper and lower surfaces for a distance of 8 ins. is a groove averaging $\frac{5}{8}$ in. in width and $\frac{1}{4}$ in. in depth (Fig. B, Plate XC). The central part of the upper surface is occupied by a shallow groove having a circular outline and burnt a dark grey colour. The groove averages $\frac{1}{2}$ in. in width and has an outside diam. of $3\frac{1}{4}$ ins. (Fig. A). On the under-surface there is a circular area of grey colour, measuring $2\frac{5}{8}$ ins. in diameter and bearing evidence of considerable heat (Fig. C). The exact use of the stone is problematical, but it may have been employed in the process of casting metal.

Found 8 ft. N.E. of the c.p. of Mound XLIV, 1894.

Figured in Plate XC.

VII. STONE DISC.

S 13. A small disc of lias of oval outline, incomplete ; use unknown.

The object has the following measurements :—Max. length $1\frac{3}{8}$ ins., max. width 1 in., thickness $\frac{3}{16}$ in. The upper and lower surfaces are flat and fairly smooth, and exhibit the natural, unpolished faces of the stone. The marginal surface is somewhat uneven and faceted, and is marked with striæ in various directions, as if it had been ground down on some hard gritty stone. The edges are slightly rounded, and chipped in places.

Found during the season 1893, but the exact locality is unrecorded.

Figured in Plate XC.

VIII. COLOURING MATERIAL.

Several small pieces of dark red-coloured stone were discovered, showing facets from wear. These include S 14, found 4 ft. S.E. of the c.p. of Mound XLIII, 1893 ; and S 19, 10 $\frac{1}{4}$ ft. N. of the c.p. of Mound IV, 1896.



BEANS, WHEAT, BARLEY, AND PARTS OF SMALL CAKES OR BUNS, FROM THE GLASTONBURY LAKE VILLAGE.

Figs. 1-10 and 15-20 are twice the original size. Figs. 11 and 12 are $\frac{1}{2}$ scale linear; while Figs. 13 and 14 (two views of the same cake) are full size.

CHAPTER XXIII.

PLANTS, WILD AND CULTIVATED.

By CLEMENT REID, F.R.S.

THE plant-remains found at Glastonbury are interesting from two points of view. In the first place, those enclosed in the peat which lies immediately beneath the mounds throw light on the physical condition of the area just before the settlement was formed. They indicate clearly that the sea-level must have been almost the same as now. Only a small amount of this peat was examined ; but it was quite sufficient to show that then as now the marsh was freshwater, or only in the slightest degree brackish. It also shows that the sea was so nearly at its present level as to keep up the water in the freshwater dykes and marshes surrounding the Village. In short, Glastonbury Lake-village proves that the intermittent subsidence, which so greatly altered the physical geography during the earlier prehistoric periods, had then come to an end, and had given place to the period of unvarying sea-level in which we now live. At exactly what period this subsidence of the land ceased, Glastonbury does not tell us ; for the deposits beneath the marsh-level have not yet been examined. But at any rate there had been a sufficient lapse of time for the submerged part to become filled up with mud and peat over considerable areas. If it had not been so, the lake-dwellings could not have been built on the sites where they are now found. Evidence obtained elsewhere makes me think that the downward movement of the land had ceased about 1500 years earlier ; so there is a wide gap between these Glastonbury lake-dwellings and the Neolithic remains found in the " Submerged Forests " of the south of England.

Amongst the common plants, which lead one to the conclusion that the sea-level has not changed since the peaty floor below the mounds was laid down, may be mentioned the white and yellow waterlilies, lesser spear-wort, pondweed, horned pondweed, myriophyl, and some sedges. One plant alone, *Scirpus Tabernaemontani*, suggests a little salt in the water. But as this plant is represented by a single fruit, which has barbed awns such as make it into a bur, easily carried by bird or mammal, it is insufficient to outweigh the distinctly freshwater assemblage proved by the rest of the plants.

A few dry-soil plants are also represented in this peat. We have the winged fruits of the hedge-row maple, and seeds of the edible berries of the hawthorn, Guelder-rose, and bramble, all of which are scattered far and wide by birds. The seeds of these dry-soil plants do not therefore prove the close proximity of dry ground. All the plants yet found in this peat still live in the neighbourhood, and they do not suggest any noticeable climatic change during the last 2000 years.

PLANTS FROM THE PEAT IMMEDIATELY UNDERLYING THE MOUNDS.

Ranunculus Flammula (*lesser spear-wort*).
 Nymphaea alba (*white waterlily*).
 Nuphar luteum (*yellow waterlily*).
 Stellaria media (*chickweed*).
 Acer campestre (*lesser maple*).
 Rubus fruticosus (*blackberry*).
 Crataegus monogyna (*hawthorn*).
 Myriophyllum spicatum (*water-milfoil*).
 Enanthe crocata } (*water-dropworts*;
 „ Phellandrium }
 Viburnum Opulus (*Guelder-rose*).
 Carduus sp. (*thistle*).
 Menyanthes trifoliata (*bogbean*).
 Atriplex (*orache*).
 Rumex, 3 sp. (*docks*).
 Ceratophyllum demersum (*horned pondweed*).
 Salix (*willow*).
 Alnus glutinosa (*alder*).
 Corylus Avellana (*hazel*).
 Sparganium erectum (*bur-reed*).
 Potamogeton (*pondweed*).
 Scirpus Tabernaemontani } (*sedges*).
 Carex, 2 sp. }

The amount of botanical material collected from the Village itself during these excavations was but small, and it is unfortunate that the rubbish in the ditch just outside the palisade was not more closely examined. Here, if anywhere, we should expect to find remains of the plants used as food, and of weeds of cultivation, for refuse from winnowing and such-like processes would probably be thrown over the fence. In similar places we should also expect to find the burs picked or carded out of the wool, and also seeds of the flax. It is curious that up till the present time not a single seed of flax has been found.

The plant-remains collected were mainly obtained from the stores of grain or beans found within the huts. The few non-edible plants occurring with these were mainly weeds of cultivation. Amongst the trees were the oak, ash, hazel, alder, hawthorn, sloe, and willow; but of these the oak and ash were probably brought from dryer ground, for use in the Village.

It is unsafe to reason from negative evidence, especially when so small an amount of material has been examined; but it is singular how few species of weeds of cultivation have yet been found among the wheat. In Roman deposits in Britain, which have been carefully examined from this point of view, we find a large proportion of our common cornfield weeds appearing for the first time. At Glastonbury, as far as we yet know, the few weeds of cultivation include only such species as we know were natives of this country long before the Celts came to Britain. In time we shall probably be able to use the weeds of cultivation as we do coins for the dating of antiquities; for each period saw the introduction of new cultivated plants, or new varieties, and with each cultivated plant is usually introduced the special set of weeds of its place of origin. At present we do not know where wheat originated, or what weeds were introduced when wheat was first cultivated in Britain.

PLANTS FOUND IN CONNECTION WITH THE LAKE-DWELLINGS.

Ranunculus hederaceus (ivy-leaved water-crowfoot).

„ *aquatilis* (water-crowfoot).

„ *Lingua* (great spearwort).

„ *repens* (buttercup).

Nymphaea alba (white waterlily).

Nuphar luteum (yellow waterlily).

Brassica sp. (black mustard?).

Lychnis sp. (ragged Robin?).

Stellaria media (chickweed).

Malachium aquaticum (great chickweed).

Vicia sp. (tare or small pea).

Faba vulgaris var. *celtica nana* (broad bean).

Prunus spinosa (sloe).

Rubus fruticosus (blackberry).

„ *caesius* (dewberry).

Rosa sp. (rose).

Crataegus monogyna (hawthorn).

Oenanthe Phellandrium (water dropwort).

Æthusa Cynapium (fool's parsley).

- Pastinaca sativa* (*wild parsnip*).
Sambucus nigra (*elder*).
Viburnum Opulus (*Guelder-rose*).
Chrysanthemum Leucanthemum (*ox-eye*).
Fraxinus excelsior (*ash*).
Menyanthes trifoliata (*bog-bean*).
Solanum Dulcamara (*bittersweet*).
Chenopodium album }
 " *rubrum* } (*goosefoot*).
 " *sp.* }
Atriplex patula (*orache*).
Polygonum lapathifolium.
 " *Hydropiper* (*water-pepper*).
 " *aviculare* (*knot-grass*).
 " *Convolvulus* (*black bindweed*).
Ceratophyllum demersum (*horned pondweed*).
Urtica ? (*stinging nettle*).
Salix *sp.* (*willow*).
Alnus glutinosa (*alder*).
Quercus Robur (*oak*).
Corylus Avellana (*hazel*).
Iris Pseudacorus (*yellow flag*).
Sparganium erectum ? (*bur-reed*).
Potamogeton 3 spp. (*pondweeds*).
Scirpus lacustris ? (*bulrush*).
Carex riparia (*sedge*).
 " *sp.*
Triticum vulgare (*wheat*).
Hordeum distichum (*two-rowed barley*).
 " *hexastichum* (*six-rowed barley*).

The only things that call for special remark in the above list are the cultivated plants, for though the sloe, blackberry, and haw were eaten, they were probably nothing but the wild forms. Neither the bullace nor the damson, both of which were eaten in Roman times, have yet been found, nor has the cherry.

The Broad Bean is represented by a very small form (Plate XCVI, Figs. 1-4), which agrees exactly in size and shape with the variety from the Swiss lake-dwellings, described by Professor Oswald Heer as *Faba vulgaris* var. *celtica nana*.¹ Indeed some of the specimens are so small and round that they were originally

1, "Pflanzen der Pfahlbauten, p. 22, figs. 44-47."

thought to be peas. The pea does not appear to have been cultivated at Glastonbury.

Though Wheat occurs in considerable quantity it is in the state of threshed grain, only a few imperfect spikelets having been found (Figs. 5, 6). The grain is very variable in size and shape (Figs. 7-10); but it is not clear whether more than one variety is represented.

In addition to the threshed grain, there were found curious small cakes or buns, three of which are shown in Plate XCVI, Figs. 11-14. The upper and lower surfaces of the cake examined are represented, full size, by Figs. 13, 14.¹ This is composed of whole unbroken wheat-grains, with a noticeable proportion of glumes and fragments of awn. As querns have been found, the natives certainly understood how to grind corn, and these buns are something different from ordinary bread. It would be very difficult to make a cake of this sort from whole grains of wheat mixed with water, for it would not hold together or bear handling—even coarse oatmeal is difficult to knead into shape. On examining the cake minutely it is also seen that the wheat-grains are not swelled or distorted, as they would be if left wet for long and then baked. This small cake looks as if it had been kneaded out of a mixture of wheat and something sticky, probably honey. It seems to have been kneaded on the palm of one hand with the fingers of the other, the hand being small and the fingers slender. It does not appear to have been much baked, as there is no sign of crust or of burning.

Perhaps such cakes of mixed honey and whole wheat were used in sacrifice; they can scarcely have been ordinary food.

The Barley also is mainly in the state of threshed grain; but sufficient fragments of ears are found to show that two forms were in use, a two-rowed (*Hordeum distichum*, Figs. 15-18) and a six-rowed (*Hordeum hexastichum*, Figs. 19, 20).

PEAS, BEANS, WHEAT, BARLEY, ETC.

Beans were found in small numbers in Dwelling-mound XLIX.

Beans and wheat were abundant in Dwelling-mound V, and a large collection of sloe-stones and other seeds were obtained from the peat immediately outside the palisading s.w. of this dwelling.

A few peas and grains of wheat were discovered in the black earth covering Floors i and ii, Dwelling-mound XVIII.

A large number of peas and beans were found at the E. side of Dwelling-mound XXVI, and in trenching the ground E. of Dwelling-mound XXVII.

Some beans were found near the N.W. border of Dwelling-mound XLII.

Numbers of beans were found near the W. margin of Dwelling-mound LVI.

1. Wheat grains would shrink in carbonising, and this bun may have lost about a quarter of its width since it was made.

Beans and wheat were abundant over the s. aspect of Dwelling-mound LVIII.

The largest collection of beans was found on Dwelling-mounds LX and LXI (especially Floor ii, Mound LXI)

Barley was abundant in Dwelling-mound LX.

Beans were abundant near the s. side of Dwelling-mound LII.

Beans were found in great numbers in Dwelling-mound LXII, in considerable quantity along the n. margin of Dwelling-mound LXIV, and near the E., S.E., and N.E. margins of Floor iii, Dwelling-mound LXV.

Considerable quantities of barley were found in Dwelling-mound LXX.

CHAPTER XXIV.

REPORT ON THE REMAINS OF BIRDS FOUND AT THE GLASTONBURY LAKE-VILLAGE.

By C. W. ANDREWS, D.Sc., F.R.S. (*British Museum, Natural History*).

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A SERIES of bird remains from the Glastonbury Lake-village was described by the present writer in *The Ibis* for 1899 (p. 351). Since that time a large quantity of bones have been obtained, and these together with the original collection have been submitted for examination and form the subject of this report. The new material does not include remains of any species not previously recognized, so that the present account is for the most part a reprint of the original one, the use of which has been kindly granted by the Editor of *The Ibis*.

PELECANIDAE.

1. PELECANUS CRISPUS, Bruch. (Fig. 179).

The first account of the occurrence of the remains of a pelican in England was given by Professor A. Milne Edwards in a paper published in 1867.¹ In this he described in detail a left humerus preserved in the Woodwardian Museum, Cambridge, to which his attention had been drawn by Professor Alfred Newton.² He further pointed out that the bone belonged to a young bird, which probably had been bred in the Fens and was not a merely accidental visitor.

In 1871 a second specimen, curiously enough also a left humerus, from Feltwell Fen, was presented to the University Museum of Zoology by Mr. J. H. Gurney; this was described by Professor Newton,³ who, on account of its large size, came to the conclusion that it belonged to the Crested Pelican (*P. crispus*), and not to the Common Pelican (*P. onocrotalus*).

1. *Ann. Sci. Nat. (Zoologie)*, 5 ser., VIII (1867), p. 285.

2. *Proc. Zool. Soc.*, 1868, p. 2.

3. *Ibid.*, 1871, p. 702.

Recently Dr. S. F. Harmer, F.R.S., has described¹ some wing-bones from Burnt Fen, Littleport, near Ely, which belong without doubt to *P. crispus*, and, as the author remarks, these together with the previously recorded specimens go far to prove that the pelican was really a native of the Fen country.

In the present collection pelican bones, including portions of the skeletons of five individuals, are numerous. Many of the bones are greatly broken and the ends much abraded, and in several instances they must have belonged to young birds. This latter circumstance appears to indicate that these birds bred in the neighbourhood, and that they were probably used for food by the inhabitants of the Village.

In determining the species to which these remains belong it will be necessary to compare them with *P. onocrotalus* and *P. crispus* only. The latter of these is the larger, and in the skeletons I have examined the bones of the wing are longer in proportion to those of the leg than in *P. onocrotalus*, in which the tibia and metatarsus are in some cases as long as those of *P. crispus*, while the wing-bones and femora are considerably shorter; even the tibia and metatarsus, however, can be distinguished, those of *P. onocrotalus* being somewhat the more slender.

Among the specimens are a left

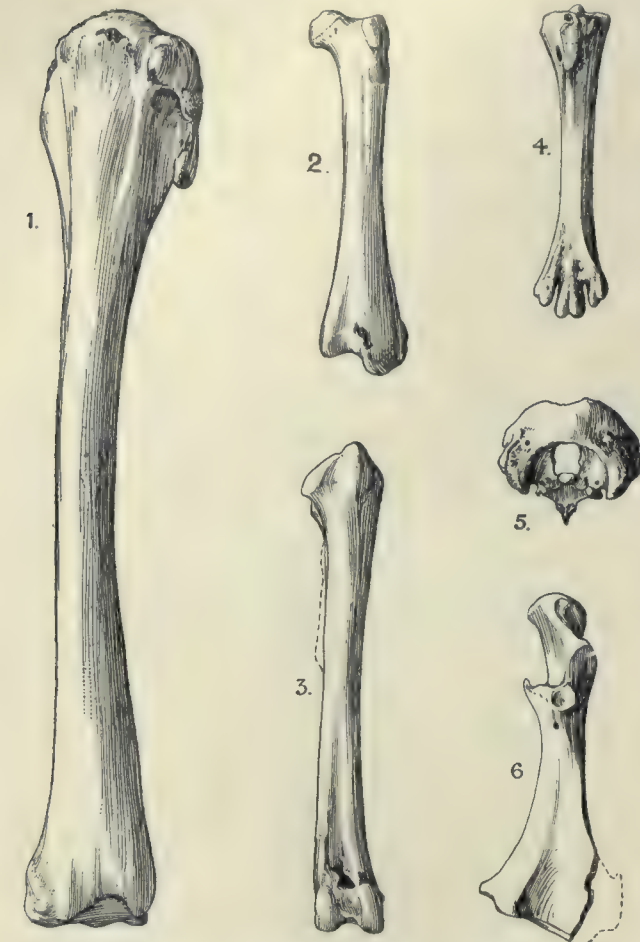


FIG. 179.—PORTIONS OF THE SKELETON OF THE CRESTED PELICAN (*PELECANUS CRISPUS*), GLASTONBURY LAKE VILLAGE.

- | | |
|-----------------------------------|--|
| 1. Left humerus from behind. | 4. Right tarso-metatarsus from behind. |
| 2. Left femur from front. | 5. Occipital portion of skull. |
| 3. Right tibio-tarsus from front. | 6. Right coracoid from behind. |

ALL THE FIGURES ARE ONE-THIRD NATURAL SIZE.

From Drawings by Miss G. M. Woodward.

humerus and left ulna, quite unbroken, and a right metacarpus wanting only a portion of the third metacarpal. These bones agree very closely with those of *P. crispus*, as is shown in the following table:—

1. *Trans. Norfolk and Norwich Naturalists' Society*, VI (1898), p. 363; reprinted in *Geol. Mag.*, Dec. 4th, V, p. 417 (1898).

	Glastonbury specimens.	<i>P. crispus</i> .	<i>P. onocrotalus</i> .
	mm. ¹	mm.	mm.
Length of humerus ..	363	363	304
Width of distal end of humerus	52	53	47
Length of ulna	410	413	350
Length of metacarpus ..	176	178	145

Several specimens of the coracoid are preserved, and of these two specimens belonging to fully adult birds are smaller than the coracoids of *P. crispus* that I have measured, and are of about the same size as those of *P. onocrotalus*; they may however have belonged to a female of the former species. The other specimens, which are clearly immature, are slightly smaller than those of *P. crispus*.

	Glastonbury specimens.	<i>P. onocrotalus</i> .	<i>P. crispus</i> .
Length of coracoid from inner } inferior angle to top of } acro-coracoid }	120 122 127 128	122	131

In the dimensions of the bones of the hind-limb the Glastonbury birds show a considerable range of variation, even allowing for differences of age; for instance, one metatarsus measures 12.5cm. in length, while another, apparently fully adult, is only 10.9cm. long; this latter may have belonged to a hen bird. As already mentioned, the tibia and metatarsus of *P. onocrotalus* are almost of the same length as those of *P. crispus*, and in fact, in the two skeletons from which the measurements of the wing-bones given above are taken, the metatarsus of *P. onocrotalus* is actually the longer. At the same time, both it and the tibia are easily distinguishable by their more slender build from those of *P. crispus* and those of the Glastonbury pelicans.

The lengths of the metatarsi are given below:—

Glastonbury specimens (9).	<i>P. crispus</i> .	<i>P. onocrotalus</i> .
110		
122		
124		
124		
124	126	128
125		
125		
126		
127		

It will therefore be seen that so far as length is concerned there is no reason for regarding the Lake-village metatarsi as other than those of *P. crispus*, which they closely resemble in all respects. Most of the tibiae are those of young birds, but

1. All the dimensions in the tables are given in millimetres.

one adult specimen agrees very closely with a tibia of *P. crispus* with which it was compared, and in both bones the extensor bridge was incompletely ossified; in another rather smaller specimen from Glastonbury the bridge is complete.

	Glastonbury bird.	<i>P. crispus</i> .	<i>P. onocrotalus</i> .
Length, exclusive of cnemial crest	186	187	183

The femur of *P. crispus*, like the wing-bones, is both longer and stouter than that of *P. onocrotalus*. Most of the fossil specimens are intermediate in size between the two, but nearer to *P. crispus*. One imperfect specimen seems to have been fully as large as the femur of *P. crispus*.

Length of femora :—

Glastonbury specimens.	<i>P. crispus</i> .	<i>P. onocrotalus</i> .
130	137	116
125		

Of the skull the only remains are the occipital regions of two specimens. Comparison of these with the skulls of the recent forms shows that in the greater degree of development of the supra-foraminal ridge, and of the mamillary processes, they approach most nearly to that of *P. crispus*. It must, however, be remarked that, in the absence of a considerable series of skulls of the different species, it is difficult to determine what may be mere individual variations and what specific differences.

In one of the specimens the cerebellar prominence is more marked than in *P. crispus*, approximating to that seen in *P. onocrotalus*.

The only other portions of the skeleton preserved are a few vertebrae, more or less imperfect, and some pieces of sternum.

From these facts there can be no doubt that *P. crispus* inhabited the West of England in considerable numbers, and that it not improbably bred there and was used for food by the people of the lake-dwellings.

According to Dresser¹ this species now ranges through S. and S.E. Europe, N. Africa, and S. Asia as far as India. It has not been recorded from Great Britain, France, Spain, Portugal, or Italy, and is rare in Transylvania, though abundant on the Lower Danube; in N. Germany a single occurrence is recorded.

In S. Russia it is widely distributed, and in the spring passes northward in large flocks. In the breeding-season it occurs fairly far north in Russia, and specimens have even been seen in the Government of Kasan and near Ekaterinburg, localities lying several degrees to the north of those in which the remains of this bird have been found in this country.

Recently Dr. Herluf Winge has called my attention to a paper² in which he

1. "Birds of Europe," VI, p. 199.

2. "Fuglene ved de danske, Fyr. i, 1894: 12te. Aarsberetning om danske Fugle," Vidensk. Meddel. fra den naturh. Foren. i Kjøbenhavn, 1895, pp. 59-60.

has recorded the occurrence of remains of *P. crispus* in kitchen-middens of the Stone Age at Havnö, on the east coast of Denmark. This discovery is particularly interesting, because it supplies a further proof that in former times the area of distribution of this bird extended much more widely in N.W. Europe than at present.

PHALACROCORACIDAE.

2. PHALACROCORAX CARBO. Cormorant.
Numerous bones, varying much in size, but none referable to the smaller *Phalacrocorax graculus*.

ARDEIDAE.

3. ARDEA CINEREA. Common Heron.
Portions of skull.
4. BOTAURUS STELLARIS (L.). Common Bittern.
Right femur and tarso-metatarsus.

PROCELLARIIDAE.

5. PUFFINUS, sp.
Humerus.

ANATIDAE.

As might be expected in such a locality, by far the greater number of the bones belong to various anserine birds. In many cases it is not possible to determine the species of ducks from isolated bones, and in the following list a note of interrogation shows that in some cases the determination is doubtful.

6. CYGNUS CYGNUS. The Whooper Swan.
Numerous bones of this species have been found, including a considerable part of a skeleton of a young individual.
7. ANSER, sp.
It is remarkable that only one or two bones referable to a goose have been found.
8. ANAS BOSCAS. Common Wild-Duck.
Very many bones of this species have been found; it seems to have been perhaps the commonest bird in the district.
9. (?) GLAUCION CLANGULA. Golden Eye.
Some humeri, doubtfully referred to this species.
10. NETTION CRECCA. Teal.
Humerus.
11. (?) DAFILA ACUTA. Pintail.
Humeri, femora, tibio-tarsi.
12. (?) SPATULA CLYPEATA. Shoveller.
Humeri, doubtfully referred to this species.
13. (?) MARECA PENELOPE. Widgeon
Humeri,

14. FULIGULA FULIGULA. Tufted Duck.
Portion of skull, tibio-tarsi, etc.
15. NYROCA MARILA. Scaup.
Humeri.
16. NYROCA FERINA. Common Pochard.
Portion of skull, limb-bones.
17. MERGUS SERRATOR. Red-breasted Merganser.

FALCONIDAE.

18. HALIAËTUS ALBICILLA. White-tailed Sea-Eagle.
Humerus, metacarpus, tibio-tarsus.
19. ASTUR PALUMBARIUS. Goshawk.
Tibio-tarsi.
20. MILVUS ICTINUS. Kite.
Tarso-metatarsus.

STRIGIDAE.

21. FLAMMEA FLAMMEA (STRIX FLAMMEA, Auct.). Barn-Owl.

RALLIDAE.

22. FULICA ATRA. Coot.
Very numerous bones including pelves and sterna.
23. CREX CREX. Land-Rail.
Humerus and part of tibia.

GRUIDAE.

24. GRUS GRUS (GRUS CINEREA, Auct.). Common Crane.
Portions of skull, and numerous limb-bones.

PODICIPEDIDAE.

25. PODICEPS FLUVIATILIS. Little Grebe.
Right humerus.

CORVIDAE.

26. CORVUS CORONE. Carrion Crow.
Humerus, metacarpus, tibio-tarsi.
27. Also a passerine humerus similar to that of a Wheatear (*Saxicola*).

The assemblage of species indicates the existence of a district of marsh and mere, haunted by flocks of Pelicans, Cranes, Swans and various species of Ducks. These no doubt furnished the inhabitants of the pile-dwellings with food. Probably the birds were killed with the sling, for great quantities of pellets of clay, well adapted for use with that instrument have been found. The occurrence of remains of very young Pelicans, Swans and Cranes seems to show that these

birds were not casual visitors but bred in the neighbourhood. From time to time a stray sea-bird made its way to the spot, and the White-tailed Sea-Eagle no doubt found there a good hunting-ground.

FISHES FOUND IN THE GLASTONBURY LAKE VILLAGE.

The following have been identified by Mr. C. Tate Regan, of the Zoological Department of the British Museum (Nat. Hist.) :—

1. Roach (*Leuciscus rutilus*).
2. Trout (*Salmo trutta*).
3. Shad (*Clupea finta*).
4. Perch (*Perca fluviatilis*).

CHAPTERS XXV AND XXVI,
AND APPENDIX.

The Remains of the Mammalia found in the Lake Village
of Glastonbury.

BY

W. BOYD DAWKINS, M.A., D.SC., F.R.S.

AND

J. WILFRID JACKSON, F.G.S.,
Assistant Keeper in the Manchester Museum.

CHAPTER XXVII.

The Inhabitants of the Lake Village of Glastonbury.

CHAPTER XXVIII.

The Range of the Iberic Race in Britain in the Prehistoric
Iron Age.

CHAPTER XXIX.

The Place of the Iberic Race in British Ethnology.

BY

W. BOYD DAWKINS, M.A., D.SC., F.R.S.

CHAPTER XXV.

THE WILD ANIMALS OF THE LAKE VILLAGE.

I. INTRODUCTION.

II. LIST OF WILD AND DOMESTIC ANIMALS.

III. RELATIVE ABUNDANCE OF WILD AND DOMESTIC ANIMALS.

IV. THE WILD ANIMALS.

I. INTRODUCTION.

THE extensive excavations made in the Lake-village, near Glastonbury, have furnished a remarkable group of remains of wild and domestic animals throwing light upon the life of the villagers; and more especially on the domestic breeds in Britain during the Prehistoric Iron Age immediately before the Roman occupation.

The majority of the bones and skulls were found in the peat around the Village outside the palisading. As pointed out by Dr. Bulleid in the first volume (p. 49), this area "appears to have been the general tilting ground for rubbish, etc. . . . Bones of animals were in some places so abundant that a wheelbarrow full was procured from four square yards of peat."

Other bones and skulls were met with in and around the bottom of some of the huts. In a few cases they were obtained from beneath the substructures of the mounds on which the huts were built. This may be accounted for by the site of the hut in question having been the dumping-ground of the Village before it was used for the addition of a dwelling to the community.

The osseous remains, though numerous, are disappointing in many cases owing to their fragmentary condition. Most of the limb-bones of some animals, especially of the ox, are represented by distal and proximal ends, and the absence of the shafts renders it impossible to reconstruct the bones so as to ascertain their dimensions. Their condition appears to have been brought about by hacking and chopping by sharp metal implements. Though the prime object of breaking the bones may have been to extract the marrow—a common practice in prehistoric times—it seems to have served a double purpose as some of the fragments have provided material for the manufacture of the numerous bone

implements, handles, etc., found on the site. Many of the bones also show traces of gnawing by dogs and other animals.

With the exception of a few examples, all the skulls of the sheep, pigs and oxen, have been mutilated by being split or sawn down the middle; and, in the case of the pigs, across the nasals as well. The remains of the horses, too, appear to have been broken up intentionally, and were obviously like the rest, relics of the feast.

Notwithstanding these drawbacks there is sufficient evidence for a comparison with other refuse-heaps, and definite conclusions as to the domestic breeds at that time present in Somerset.

II. LIST OF WILD AND DOMESTIC ANIMALS.

The mammalia found in the Lake-village belong to the species in the list on p. 643, their relative abundance being marked by the numbers in each species. These numbers merely relate to the selected sample sent for examination and do not represent the total finds. In the case of the three following columns relating to the Romano-British Villages explored by Pitt-Rivers in Cranborne Chase the numbers are absolute.

To complete the list from the Lake-village the small and unimportant species must be added—Hedgehog, Marten, Weasel, Polecat, the Water, Field, and Bank Voles and the Field Mouse.

III. RELATIVE ABUNDANCE OF WILD AND DOMESTIC ANIMALS.

As may be seen from the table below, it is unlikely that the wild animals generally contributed, excepting very occasionally, to the food of the villagers. They but rarely had venison or beaver, and are not likely to have eaten the rest except under the pressure of famine. The domestic animals, however, were the usual food—mutton and lamb were most common, then beef, horse-flesh more rarely, then pork, goat-flesh ending the list. It is not probable that the dog formed part of the menu.

The same rarity of the wild as compared with domestic animals in the cuisine of the Romano-British villagers of Cranborne Chase is seen in the table, although it is not quite so marked. Here, too, the latter present interesting points of difference. At Woodcuts and Woodyates the ox was more commonly used than the sheep; this is reversed at Rotherley. Next comes the horse, and the pig, the goat ending the list. These differences are just what might be expected from the stock of the farmers of to-day, that varies according to the soil and the situation.

		Lake Village.	Hod Oppidum. 1 Prehistoric Iron Age.	2 Woodcuts. Romano-British.	2 Rotherley. Romano-British.	2 Woodyates. Romano-British.	3 Victoria Cave. Romano-British.	4 Gop Cave. Bronze Age.	5 Rhos Digne. Perthi Chwareu. Neolithic.	6 Dog Holes Cave, Warton, Lanc. Neolithic.	6 Dog Holes Cave, Warton, Lanc. Romano-British.	7 Corstopitum. Roman.	8 Newstead. Roman.
WILD.													
Red-Deer	..	2	×	26	2		×	×	×	×	×	×	×
Roe-Deer	..	6	×	100	26	8	×	×	×	×	×	×	×
Wild Boar	..	4						×	×	×			
Fox	..	4		9			×	×	×	×	×	×	×
Wild Cat	..	5											
Otter	..	36											
Badger	..			5	1	1	×	×	×		×	×	×
Beaver	..	14										×	
DOMESTIC.													
Horse	..	73	×	420	660	945	×	×	×	×	×	×	×
Celtic Ox	..	181	×	1639	1291	1353	×	×	×	×	×	×	×
Sheep	..	3013	×	1206	1460	1215	×	×	×	×	×	×	×
Goat	..	6	?×	1	3		?×	?×	?×	×	×	×	×
Pig	..	58	×	531	106	73	×	×	×	×	×	×	×
Dog	..	24	×	239	145	75	×	×	×	×	×	×	

The same predominance of domestic over wild animals is found in all the refuse heaps of the Bronze and Prehistoric Iron Ages, and the only exceptions that are on record are in Neolithic accumulations in Scotland where the character of the country then as now is more suited to the hunter than to the farmer.

IV. THE WILD ANIMALS.

We will consider the wild animals first and then deal with the difficult question of the various domestic breeds on the farms of the lake-villagers.

1. Dawkins, "Exploration of Hod Hill, near Blandford, Dorset, in 1897." *Archæol. Journ.*, LVII (1900), 52-68.
2. Pitt-Rivers, "Excavations in Cranborne Chase," I-III, 1887-1892.
3. Dawkins, "Cave Hunting," (1874), 131.
4. Dawkins, *Archæol. Journ.*, LVIII (1901), 322-341.
5. Dawkins, "Cave Hunting," (1874), 166.
6. Jackson, "Third Report on the Explorations at Dog Holes, Warton Crag, Lancs." *Trans. Lanc. and Ches. Antiq. Soc.*, XXX (1913), 99-130.
7. Meek and Gray, "Corstopitum: Report on the Excavations in 1910; Animal Remains." *Archæol. Æliana*, 3 ser., VII (1911), 78-125.
8. Ewart, "The Animal Remains at Newstead," in "A Roman Frontier Post and its People" (1911), 362-377.

THE RED-DEER AND THE ROE-DEER.

The Red- and the Roe-deer are represented by numerous portions of antlers, most of which have been worked more or less into implements or tools. The rarity, however, of limb-bones and other skeletal portions of these animals is striking and leads to the inference that the deer were not hunted to any great extent for food. From an examination of portions of antler which still retain the burr it is evident that the majority were shed specimens doubtless picked up by the villagers during excursions in the late autumn or winter.

Only one bone has been seen which is referable to Red-deer and this is a metatarsal with both extremities cut away. The bone has evidently been used for some industrial purpose as the shaft is highly polished.

The Roe-deer is represented mainly by antlers and a few metacarpals and one metatarsal. Two metacarpals are perfect and are remarkable for their great difference in length; one measures 170mm., the other only 145mm., the widths of the lower condyles being 20 and 20.4mm. respectively. The metatarsal is 172mm. in length, the width of the lower condyles being 21.5mm.

THE WILD BOAR.

The Wild Boar is represented by a perfect left lower tusk or canine measuring 200mm. along the outer curve; a right lower tusk of somewhat similar dimensions, but the basal end has been sawn off straight; also a fragment of a very much larger and more robust tusk. The worked tusks are described and figured in Chapter XV, pp. 480-485. There is also a large malformed canine belonging to the lower jaw, the basal end of which presents numerous close-set rugose rings. There are no bones from the refuse-heap that can be assigned to the Wild rather than the Domestic Hog. It is, therefore, likely that the former was then very rare in the neighbourhood.

THE FOX.

Four bones only are referable to this animal, viz. a right humerus, two right radii, and the anterior portion of a skull. The humerus has a maximum length of 116.5mm. and the radii are 125.5 and 108mm. long respectively. In the skull fragment the maxillary tooth-row is 58mm. (premolars = 42; molars = 16mm.); the greatest width between the outsides of the alveolar borders is 40mm.; the rostral breadth over the canines = 25mm.; the rostral depth behind the canines = 18.5mm., and the palatal depth behind the tooth-row = 36mm. The remains agree generally with those of the Common Fox, except the small radius which is remarkable for its shortness and slender build.

THE WILD CAT.

The lower jaws of Cat were found in Mound LXXIV, and a cat's skull was dug up near the N.N.E. margin of Floor ii, in the same mound. A few limb-bones of this animal were also obtained. The skull is much larger than that of a domestic¹ cat (A 298) in the Manchester Museum, and appears to come nearer to specimens of the Scotch wild cat (*Felis sylvestris grampia*, Miller).² The Glastonbury specimen has a condylo-basal length of 87mm. and a

1. It may be noted that the domestic cat was derived from Egypt, and introduced into Britain in the tenth century A.D. It is first mentioned in the laws of Howel Dda ("Leges Wallicæ," or "Ancient Laws and Institutes of Wales").

2. "Catalogue of the Mammals of Western Europe" (1912), p. 464 (Brit. Mus. publication).

zygomatic breadth of 66mm., as against 76.5 and 57.5mm. for the domestic cat (A 298). The maxillary tooth-row is also correspondingly longer.

The lower jaws are considerably larger than those of the domestic cat and agree closely with wild examples from Scotland. The lengths of the mandibles are 65.5 and 66.2mm.; the lengths of the three cheek-teeth, 22 and 21.2mm.; while the lengths of the carnassial teeth are 9 and 8.5mm. respectively. The depth of the horizontal ramus is about equal in each, viz. 12.5mm. behind the carnassial.

Of the limb-bones there are two tibiae measuring 132 and 129mm. in max. length; two humeri, 112 and 105.5mm., max. length; and one ulna, 122.5mm., max. length.

THE PINE MARTEN.

This animal is represented by a brain-case which shows no sagittal crest, and by an imperfect lower jaw with a tooth-row of 31mm.

THE POLECAT.

A fairly perfect skull is referable to this species; also a right humerus minus the proximal end. The skull has a condylo-basal length of 55mm.; a zygomatic width of 35mm.; width at lachrymal foramen, 18mm.; width between ends of post-orbital processes of frontal, 21mm.; length of tooth-row (four teeth), 14.2mm.

WEASEL.

A skeleton of a large Weasel was met with in Mound LXIII (E. side), 1904. The length of the lower jaw (condyle to tip) is 21.3mm.; the tooth-row is 10.5mm. The humerus has a length of 27.8mm.; the tibia, 29.6mm.; the femur, 27.9mm.; and the innominate bone, 24.5mm. Judging from the lower jaw the animal appears to have been of the larger variety.

HEDGEHOG.

A lower jaw retaining three of the teeth belongs to this animal. The jaw has a length of 41.9mm., while the full tooth-row measures 20.5mm. It is somewhat surprising that so few remains of the Hedgehog are present.

WATER VOLE, FIELD VOLE, AND BANK VOLE.

These three animals are represented by limb-bones, jaws, and skull fragments, and the remains agree generally with present day forms. Those of the Water Vole are the most abundant.

FIELD MOUSE.

A pair of lower jaws and the greater part of the skeleton of a Field Mouse were found in Mound LXXVIII, 1904, but the remains are too imperfect for measurement.

OTTER.

The remains of Otter consist of skulls, lower jaws, and various limb-bones. The skulls, unfortunately, are much broken and only one specimen permits of measurements being taken. This specimen has a condylo-basal length of 122mm.; a zygomatic breadth of 77mm.;

width at lachrymal foramen, 27.5mm.; width between ends of post-orbital processes of frontal, 23mm.; length of tooth-row (five teeth), 33mm. The post-orbital constriction is rather smaller than usual and the length of the tooth-row is somewhat short for the length of the skull. The relative shortness of the mandibular tooth-row is also noteworthy in the case of the lower jaws. The jaws belonging to the above skull measure 77mm. in length from condyle to tip and have a tooth-row of 38mm.; another pair measuring 78mm. long have a tooth-row of 37mm.; and in an odd jaw 78mm. long the tooth-row is 38mm.; the latter jaw is much bowed. In addition to the above there is an imperfect pair which were found in Mound LXXIV, Floor iii (N.E. side), 1906.

The limb-bones do not call for special comment, except in the case of a left humerus which has been broken during life and has re-set itself by overlap thus shortening the bone. The dimensions (in millimetres) of the more perfect bones are these:—

			LENGTH.	WIDTH, PROXIMAL ARTICULATION.	WIDTH, DISTAL ARTICULATION.	WIDTH, MIDDLE OF SHAFT.
HUMERI	...	R.	94	17	17.8	8
		R.	83.5	14	15.2	7.1
		R.	93	15.4	18	8
		R.	95	15	17.7	7.5
		(Minus proximal end)	(89+)	—	18.1	7.2
		L.	82.5	13.6	13.6	6.6
RADII	...	R.	64.9	12	10.5	6.2
		R.	64.5	12	10	6.5
ULNAE	...	L.	90.5	—	—	—
		R.	89	—	—	—
FEMORA	...	L.	94	12.4	24	10.5
		L.	87	10.7	21	8.9
		R.	96	13	24	10.1
		R.	95	12.5	24	10
		R.	97	12.7	25.4	10

BEAVER.

The Beaver is represented by two imperfect skulls and several lower jaws; also by one or two limb-bones. Unfortunately neither the skulls nor the lower jaws are perfect enough to furnish full measurements, the length of the tooth-row being practically the only dimension available in the case of the jaws. One skull (B 4) has a zygomatic breadth of 98.5mm.; the inter-orbital measurement is 28.2mm., and the length of the tooth-row, 31mm. The sagittal crest is rather low. The other skull has a condylo-basal length of 132mm.; the inter-orbital measurement is 28mm.; the length of the tooth-row, 31.4mm.; and the length of the diastema, 42.7mm.; there is a moderate sagittal crest.

In five of the lower jaws, in which the teeth are present, the lengths of the tooth-row are, 35.5, 36, 36.4, 38, and 38.2mm., respectively.

Compared with the skull and lower jaws of a recent male beaver in the Manchester Museum,¹

1. The left lower jaw of this specimen is interesting owing to the entire absence of the last molar, \overline{M}_3 ; the corresponding tooth is present on the right side and is well worn,

the Glastonbury remains are smaller in size, and the teeth, especially in the lower jaws, exhibit some variation in the folding of the enamel. This may be due to differences in wear. In two of the jaws the ridges of the teeth are elaborately crimped, and in another pair the first tooth, \overline{PM}_4 , on each side is obliquely placed.

Of the limb-bones there are three tibiae, but only one is perfect enough to measure its max. length, which is 132mm. ; the least circumference of the bone is 36mm. The two remaining bones are slightly stouter in build, with a least circumference of 37mm. A left femur, somewhat imperfect, has a max. length of 118mm., the breadth of the condyles being 39mm.

Dr. Bulleid reports¹ that Beaver bones were dug up in four distinct places in Mound VI, and that remains were also found in Mounds XXX and XXXVII.

This list of wild animals presents but few points of interest. The Otter and the Beaver might be expected in the Somerset marshes, and the Red- and Roe-deer in the forests of the uplands. The Wild Cattle of the Urus type living in the Neolithic Age in Sussex had been hunted down before the beginning of the Bronze Age.

We would, however, note that the absence of the Common Hare then, as now, in the district was probably due to a prejudice against its flesh, and the Wolf which was forbidden access to the Village and to the Isle of Avalon or Glastonbury by the fosse and lofty ramp that cut off the farm-land of the Village from the surrounding uplands. The Beaver and Otter could come close to the Village, and the smaller carnivores might easily escape notice in the island, while the larger such as the Wolf and Fox would at once be hunted down.

1. Vol. I, p. 75.

CHAPTER XXVI.

THE DOMESTIC ANIMALS OF THE LAKE VILLAGE.

V. THE DOMESTIC ANIMALS IN BRITAIN IN THE PREHISTORIC PERIOD.

VI. THE DOMESTIC ANIMALS OF THE LAKE VILLAGE.

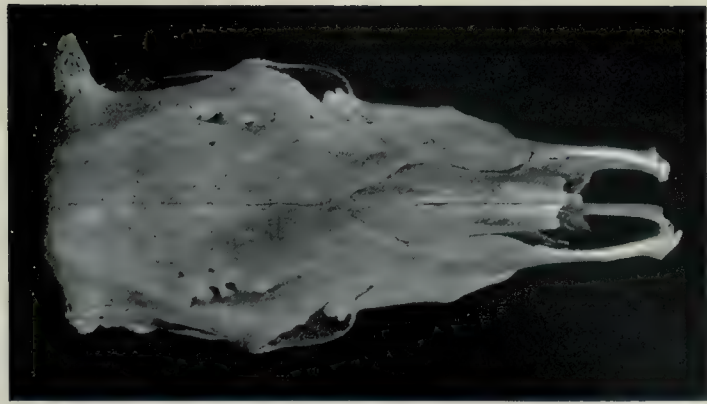
VII. APPENDIX.

V. DOMESTIC ANIMALS IN BRITAIN IN THE PREHISTORIC PERIOD.

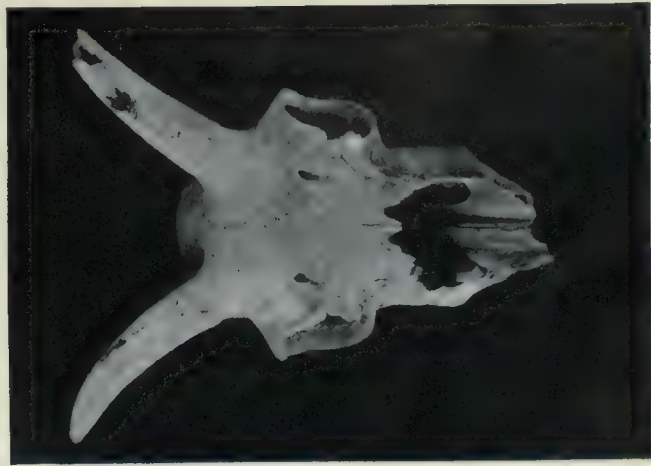
Before we consider the domestic breeds of the lake-villagers, it will not be without interest to examine the evidence as to their introduction into Britain. They consist of the horse, small shorthorn (*Bos longifrons*), sheep, goat, pig and dog. If reference be made to the table (p. 643) it will be seen that the whole of them range back as far as the Neolithic Age. They were undoubtedly introduced by the Neolithic herdsmen from the Continent. He migrated—or trekked with his flocks and herds—and therefore we need not be surprised that they make their appearance *en bloc*. The wild species from which they are derived probably passed under the rule of man in some extra-European region, and one of them the *Bos longifrons* has no wild ancestral form in Europe. But whatever view be taken with regard to this the evidence as to the age leaves no room for doubt. They appear in the Neolithic stage of the Prehistoric Period and their arrival is one of the chief points that mark off that period from the Pleistocene.¹ It is probable that the migration began from the great plains of middle Asia, “the birthplace of the nations,” and that the Neolithic civilization which accompanied it was not due to the slow improvement of Palæolithic culture in Europe. No evidence in favour of the latter view has up to the present time stood the test of criticism.

The flocks and herds, the pigs and dogs, introduced into Britain in the Neolithic

1. If Mr. R. A. Smith's view be accepted that the Neolithic flint-mines and implements at Cissbury and Grime's Graves are more or less Palæolithic in age, it follows that the whole group of domestic animals are Pleistocene, including the mines themselves that have been worked in “the pillar and stall fashion,” and in the second locality cut with polished Neolithic axes. He has been misled by assuming that the form of an implement is an infallible guide to the age. If this principle be applied to implements of American Indians, or of Australian natives, they can with equal justice be taken to belong to the same remote age.



1, 2. Ox (*Bos longifrons*) skull, about $\frac{1}{2}$ natural size.



4, 5. Sheep skull ("goat-horned" type), about $\frac{1}{2}$ natural size.

3. Ox (*Bos longifrons*) skull, about $\frac{1}{2}$ natural size.



6. Sheep horn cores ("big-horned" type), about $\frac{1}{2}$ natural size.
ANIMAL REMAINS FROM THE GLAŦTONBURY LAKE VILLAGE.

Age show singularly little modification of type during the Age of Bronze. In the Prehistoric Iron Age they begin to show the variation that may be expected from domestication, and various breeds are clearly defined.

VI. THE DOMESTIC ANIMALS OF THE LAKE VILLAGE.

The Domestic Animals comprise the following forms:—

- | | |
|----------------------------------|----------------------|
| A. Horse (small breed). | D. Goat. |
| B. Ox (<i>Bos longifrons</i>). | E. Pig (small form). |
| C. Sheep (two or more breeds). | F. Dog. |

Remains are so numerous that it is impossible to indicate the total number of individuals represented. Several hundredweights of bones were gone through in the storehouse and in the Museum at Glastonbury, and a careful selection was made of the more striking varieties in the different species. The present report is based mainly on this selection.

A. HORSE.

The remains of the domestic horse include three groups of bones belonging to one individual in each case.

In Mound LVI, the lower bones (Appendix, Table I) of all four legs, comprising metacarpals, metatarsals, phalanges, etc., were met with under conditions suggesting that they all belonged to one animal. The metacarpals measure 204mm. in length, the width at the middle of the shaft being, in the right, 28.7mm. and in the left, 27.7mm. The length is thus 7.1 and 7.36 times the width at the middle of the shaft. The metatarsals are 246mm. in length, with a width of 25.5mm. at the middle of the shaft. The hoof-cores measure about 40mm. from the centre of the articulation to the point of the toe, and one example is 64.5mm. in extreme width; another 59.6mm. Both are slightly hollowed out on the under-side.

The animal to which these bones belonged was probably a little over 12 hands in height and of the same slender-limbed variety as in the Roman Fort at Newstead, described by Professor Ewart as the "plateau" or *Equus agilis* type.¹

A second group (Table II) consists of bones of the right fore foot,—metacarpal, phalanges i, ii, and iii, one splint bone, and three carpals. The metacarpal in this case measures only 197mm. in length, with a mid-shaft width of 30.5mm., the length being, therefore, 6.45 times the width, or practically midway between the "plateau" and "forest" (*E. robustus*) types of Ewart.² In height the animal would probably be about 11.7 hands. The hoof-core is hollowed and measures 41.5 by 62mm. (extreme width).

A third group (Table II) is represented by the bones of the right hind foot, comprising calcaneum, astragalus, tarsals, metatarsal, splint-bones, and phalanges i, ii, and iii. The metatarsal is 234mm. in length with a width of 24mm. at the middle, indicating a slender-limbed animal, probably in height the same as the last. The two series were not actually found together, though they possibly belong to the same animal. The hoof-core is much hollowed out on its under-side and measures 40.5 by 61mm.

1. "The Animal Remains at Newstead," by J. C. Ewart, in "A Roman Frontier Post and its People," by James Curle (1911).

2. *Op. cit.*

Other hoof-cores from the refuse-heaps fall into three groups; the first is represented by one core measuring 39.6mm. in length¹ by 58.6mm. in extreme width, the under-side being hollowed out; the second by two cores, 43.9 by 65.9mm., and 42.5 by 64.5mm., respectively, in which the under-side possesses only a slight hollow; and the third by three cores 44.5 by 68.4mm., 49 by 81mm., and 53 by 84mm., respectively, the under-side of these being almost flat. The first and second groups are very similar to the type of hoof-core of the three associated series of horse bones just described. The third group, however, appears to have belonged to a different and larger type of horse, but the absence of standards of comparison renders this uncertain.

Amongst the phalanges there are three coronet and two pastern bones, which from their size appear to have belonged to a larger animal.

The bones selected out of the refuse-heaps as standards are six metacarpals and six metatarsals, and the lengths and mid-shaft widths of these are given below, the remaining measurements being given in Table III.

The metacarpals measure, left, 183 by 28mm., 196 by 28.7mm., 201 by 30.6mm.; right, 185 by 25.2mm., 187 by 25mm., 191 by 27mm.; the lengths ranging, therefore, from 6.53 to 7.48 times the width at the middle of the shaft.

The metatarsals measure, left, 235 by 25.8mm., 237 by 26.7mm., 248 by 25.5mm.; right, 227 by 25.7mm., 230 by 26.3mm., 239 by 28.5mm.; the lengths ranging from 8.4 to 9.72 times the width.

The length-width index given by Prof. Ewart² for his "plateau" or *E. agilis* type is, metacarpal, 7.5, and metatarsal, 9.2; for his "forest" or *E. robustus* type, metacarpal, 5.8, and metatarsal, 7.1.

Comparing these indices with the results given above it will be seen that the refuse-heap bones are decidedly of the slender-limbed "plateau" type and evidently belonged to ponies 11 to 12 hands in height at the withers. Except in their being somewhat smaller, in some cases, the bones agree very closely with Neolithic, Bronze and Roman age specimens from various localities. They are quite distinct from the larger and more robust type of the Pleistocene river-gravels and caves as represented by specimens in the Manchester Museum.

Taken as a whole they indicate small-sized animals of the Exmoor pony type, in some cases being slightly larger and in others slightly less than the height, 11 hands 2.5ins., given by Pitt-Rivers for his test animal.³

Turning to the remaining limb-bones it is found that these confirm the evidence of the cannon-bones. Owing to their imperfect condition only a few of these bones permit of full measurement. Those sufficiently perfect to measure their lengths⁴ are as follows:—Humeri, 232 and 240mm.; radius, 275mm.; femur, 302mm.; tibiae, 260, 274, and 324mm. With the exception of that of the last-mentioned tibia these measurements appear to indicate small animals and to be in keeping with the metacarpals and metatarsals just described,—that is to say, animals equal to, or slightly larger than, the Exmoor pony. From the length of the odd tibia, however, one would infer that a larger type was represented, probably somewhat larger than the New Forest pony given by Pitt-Rivers as 12 hands 3 ins.

The fragmentary skulls and lower jaws, like the cannon-bones, appear to indicate small animals. The most perfect specimen (No. 1) is the greater part of a skull with most of the teeth, and belonging to a stallion between 6 and 8 years of age. All the teeth are well worn except the canines which are small and do not show wear. The molar series (all present on

1. The lengths are from centre of articulation to point of toe.

2. "Animal Remains at Newstead," p. 365, and *Proc. Roy. Soc. Edin.*, XXX, pt. iv, 1910, p. 310.

3. "Excavations in Cranborne Chase," I and II, 1887-8.

4. The lengths here given are between articular surfaces in each case.

one side) agree very closely with Ewart's Newstead horse of the "plateau" type.¹ They have short pillars, the crown of *PM*₄ being nearly three times the length of its pillar. The first premolar, or wolf tooth, however, is absent in the refuse-heap specimen. The length of the tooth-row in this specimen is 165mm., this being 5mm. longer than in the New Forest pony, 12 hands 3 ins. in height, used by Pitt-Rivers as a test animal. The least width across the premaxillae, behind the incisors,² is also slightly more (58.4mm.) in the Glastonbury specimen, than in the New Forest pony (56mm.). The measurements of the face, etc., and of some of the individual teeth will be found in Table IV.

A further specimen (No. 2) is an imperfect premaxillary containing the incisors, and small canines, and four of the front cheek-teeth. Alveoli are present also for the first premolars, but these teeth have dropped out. This specimen appears to be about the same age as No. 1. The pillar in the cheek-teeth is somewhat short, but the folding on the crown is slightly more complicated than in No. 1. The specimen is also narrower across the nasals and behind the incisors (49.6mm.) than No. 1, and resembles Pitt-Rivers' Exmoor pony in the latter respect. The imperfect nature of the tooth-row prevents its length being taken, but from a comparison of the length of the four cheek-teeth (118mm.) present with the same four in skull No. 1 (110mm.), it would appear to have been longer than in the latter. The incisors in No. 2 project slightly more forward than in No. 1. (See Table IV.)

A third specimen (No. 3) is a fragment of maxillary with three cheek-teeth. The teeth are considerably worn and possess strong roots; they measure,—*PM*₃, 27 by 26mm., pillar 9.5mm.; *PM*₄, 26.5 by 26mm., pillar 10.5mm.; *M*₁, 23 by 26mm., pillar 11mm. Making due allowance for age these teeth closely resemble those of the equine skull No. 1, and belong to the same type.

Amongst the lower jaws there is only a single pair in which the tooth-row can be measured; this is 168mm., or slightly longer than in Pitt-Rivers' New Forest pony (162mm.). This pair of jaws was found on the surface of the rush-peat underlying the substructure of Mound LXVI.

Teeth of the horse were also found in Mound LI, and nine teeth together in the peat in Mound LIII.

From the above analysis of the equine limb-bones and fragmentary skulls it is clear that the inhabitants of the Lake-village possessed small slender-limbed ponies of a similar type to those met with by Pitt-Rivers in the Romano-British Villages at Rotherley, Woodcuts and Woodyates, and by others in various other Romano-British sites,—a type best represented to-day by the Exmoor pony. There is also another breed approximating very closely to the New Forest pony. Ponies were undoubtedly used by the villagers for drawing wheeled vehicles, and for ploughing as well as for riding. In this connection we may note that fragments of wheels have been found in the Village, and that in the days of Caesar war-chariots were used in battle long after they had disappeared on the Continent. From the absence of horse-shoes it may be inferred that the ponies were not shod, as would have been advisable if the roads had been macadamized as they were during the Roman occupation.

1. "Animal Remains at Newstead," p. 367, fig. 59.

2. Pitt-Rivers' measurement, 10—10, Horse.

B. OX.

The remains of oxen constitute a very large proportion of the animal bones met with in the refuse-heaps, ranking next to those of sheep in their abundance. Many of the bones and jaws belong to young calves, but the majority are those of fully-grown animals. As none of the bones were found actually associated together, they may be conveniently described in two groups, Limb-bones, and Skulls and Lower Jaws.

With the exception of the metacarpal and metatarsal bones very few of the limb-bones are perfect enough to give their lengths, as the majority have been broken up for food. Of the metacarpals twelve are selected to represent the range of variation in length and build. The lengths of these range, in the right from 163 to 181mm.; in the left from 158 to 179mm. As will be seen by Table V, however, the various other measurements, especially the widths of the distal end and at the middle of the shaft, present some remarkable features when compared with the length of the particular bone. For example, one bone 178mm. in length is 63mm. wide at the distal end and 33mm. at the middle of the shaft, whereas another bone 179mm. long is only 51 and 27mm. measured at the same points. Sexual differences may possibly account for some of these discrepancies. The average length and distal width of the total number of metacarpals examined is, for the right limb, 169 and 52mm., and for the left limb, 170 and 51mm.

In the metatarsals sixteen examples are selected, and these vary in length, in the right from 185 to 203mm., in the left from 188 to 206mm. These also show somewhat similar differences in their distal and mid-shaft widths as in the metacarpals (Table V). The average length and distal width of the total number examined is, for both right and left limbs, 194 and 47mm.

On comparing the indices of the metacarpals and metatarsals with those given by Meek and Gray,¹ it is seen that the Glastonbury animals are decidedly smaller than the Romano-British cattle of Corstopitum, the fort on the Roman Wall. Again comparing them with the measurements of the bones of a Chillingham cow, given by the same authors, it is seen that the average of the metacarpals is 9 to 10mm. less, and the average of the metatarsals, 11mm. less, than in that animal.

The bones from the Lake-village are also smaller than those of the Kerry cow, 3ft. 5ins. in height, used by Pitt-Rivers as a test animal.

The other limb-bones also indicate, on the whole, small animals. All the humeri are less in length than those of the Kerry, though a few have a greater circumference; only two of the radii are equal to the Kerry, all the others being less in length, the shortest being 224mm. One left femur and a tibia belonging to it are somewhat longer than the corresponding bones in the Kerry, but less than those of Pitt-Rivers' other test animal, the Alderney cow, 3ft. 10½ins. in height.

One point of interest, though it may not carry any great weight owing to the bones not being proved to belong to one animal, is the fact that, on the average, the radii are shorter than the humeri, and the tibiae shorter than the femora, as in the Kerry and Alderney of Pitt-Rivers. In the Chillingham and recent Shorthorn, the radii are longer than the humeri, while the tibiae are longer than the femora in the Chillingham, and the same length in the Shorthorn.²

The calcanea range in length from 107 to 138mm.; the astragali, from 46 to 57mm. (inner side). As already mentioned the skulls of the oxen had been split in half down the middle of the

1. "Report of the 1910 Excavations at Corstopitum: Animal Remains," by A. Meek and R. A. H. Gray. *Archæol. Æliana*, 3 ser., VII (1911).

2. Meek and Gray, *Op. cit.*, p. 106, Table I,

frontals in order to extract the brain. Consequently there are only two, or possibly three, skulls perfect enough to be of use for comparison and measurement, all the remainder having lost the greater part of their anterior and basal portions. These latter, however, show that there was some interesting variation in the size and shape of the horns amongst the cattle. Some of the horn-cores (Table VI) are very robust in build and from 195 to 205mm. in length, as measured along the outer curve, while others are much weaker and shorter. In almost all cases the horn-cores curve outwards and forwards, with occasionally a slight downward tendency, as in typical Celtic Shorthorns (*Bos longifrons*). The majority are broadly elliptical at the base, but some are much compressed before and behind with the upper edge strongly keeled. In section these are narrowly elliptical.

These fragmentary skulls show great uniformity in the intercornual ridge (mesial frontal prominence) and the temporal fossae, the latter communicating freely with the occiput, as in Ewart's figure¹ of a Newstead ox.

In all the specimens the supracrestal part of the occiput is concave above the shield for the insertion of the ligamentum nuchae, and projects beyond the crest and occiput proper.

The skulls (Table VII) which are perfect enough to yield some measurements present several interesting features.

SKULL No. 1.—This is a fairly perfect skull with rudimentary horn-cores, a notched occiput, and short, forked premaxillae. Its total length from the pole to the alveolar point is about 380mm. The horn-cores (Plate XCVII, figs. 1, 2) are mere points, 35mm. long, extending outwards from the frontals. Their weak development causes the intercornual frontal prominence to stand well above the plane of the horn-cores. The skull evidently belonged to an animal in process of losing its horns; and presents a stage in the passage of the horned to the hornless breeds through which the polled Galloway and probably other polled breeds have passed. The occiput is deeply notched by the temporal fossae (as in Ewart's fig. 84).² The width between the infracornual notches is 101mm.; across the occipital condyles, 84mm. The supracrestal part of the occiput, 38mm. deep in the middle, projects beyond the crest and overhangs the occiput proper. It is concave above the shield-like projection for the insertion of the ligamentum nuchae. The widest part of the occiput is 155mm., and the depth from the occipital crest to the lower border of the foramen magnum is 94mm. (Plate XCVII, fig. 3). Both the premaxillae (about 100mm. in length) are forked and fail to reach the nasals by some 20mm. The distance between the premaxillae and the lacrymals is 46mm. The anterior muscular impressions on the basi-occipital are strongly developed and supported on prominent tuberosities.

SKULL No. 2.—This is, unfortunately, somewhat imperfect, as the orbits, etc., are broken away. It possesses flattened horn-cores, curving slightly backwards and then downwards; a notched occiput, as in No. 1; and short forked premaxillae. The horn-cores measure about 90mm. along the upper curve and are 43 by 23mm. in diameter at the base. The supracrestal part of the occiput, 41mm. deep in the centre, projects beyond the crest, etc., as in No. 1, but the concavity above the ligamentum nuchae shield is not so deep. The width between the infracornual notches is 113mm.; across the occipital condyles, 92mm. The greatest width of the occiput cannot be ascertained owing to the broken condition of the skull. The depth from the occipital crest to the lower border of the foramen magnum is 108mm. Though the premaxillae are broken away, there are indications on the maxillae which show them to have been forked and not reaching the nasals.

SKULL No. 3.—This consists solely of a frontal portion with the left horn-core attached.

1. "On Skulls of Oxen from the Roman Military Station at Newstead, Melrose," *Proc. Zool. Soc.*, London, 1911, p. 271, fig. 84.

2. *Ibid.*

The horn-core is more normal, extending forwards and downwards. The intercornual ridge, temporal fossae, etc., closely agree with Nos. 1 and 2. Only five measurements of this skull could be taken, and these are given in Table VII.

In addition to the above adult skulls there is a right maxillary of a calf with the milk-teeth and *M*1 & 2 in place. The latter tooth is just beginning to show wear. This specimen is of some interest as the premaxilla is also forked and does not reach the nasal.

Amongst the lower jaws of oxen are several which possess only five teeth, the antepenultimate premolar being absent. This peculiarity has been known for some time now amongst Roman and Romano-British remains. The Glastonbury find, however, is of further interest since Meek and Gray¹ point out that there is no described evidence of the existence of this type (which they consider a new species—*Bos sylvestris*) antecedent to the Roman period. It is probably a variety of *Bos longifrons*.

As will be seen by the measurements (Table VIII), the lengths occupied by the molars and premolars in the six-toothed or normal jaws vary from 122 to 132mm., the average length being about that of Pitt-Rivers' Kerry cow, viz. 129mm. In the five-toothed jaws the lengths are somewhat less owing to the missing premolar.

Amongst the normal jaws are one or two which are of special interest on account of the fact that they show a transition towards a five-toothed condition. One right ramus shows *PM*2 in position with the adjacent premolar crowding it out. The tooth is only lightly held in its socket and when lifted out it is seen that its roots are almost absorbed. In a second specimen the process of shedding is even better displayed, as the anterior root of *PM*2 is visible, having been pushed through the anterior wall of its alveolus. It is a noticeable fact that in the jaws where *PM*2 is present that premolar shows little or no signs of wear, even though all the remaining teeth, including *M*3, are well worn. The shedding of this anterior premolar seems undoubtedly to be due to disuse and consequent loss, brought about by domestication. The same feature is present amongst the Glastonbury sheep jaws.

Two of the ox jaws with only five teeth show other curious abnormalities, such as the almost complete suppression of the third lobe of the last true molar. The degree of suppression is even greater than in the same teeth in the lower jaws of two specimens of the Gnu in the Manchester Museum.²

In concluding the account of the oxen remains it might be stated that, although the material is not by any means as perfect as could be wished for purposes of measurement and comparison with recent types, the various limb-bones, skulls, and lower jaws, dealt with above, all appear to indicate small animals of the Celtic Shorthorn (*Bos longifrons*) type. Their nearest representative to-day is probably to be found in the Kerry breed of Irish Cattle.

It is worthy of note that there is no evidence of the presence of large animals, such as the Urus (*Bos primigenius*), or of the domesticated Roman long-horned ox, or even of large heavy built animals such as those used by the Romans in Italy, Spain and Gaul.

The *Bos longifrons* has a very wide range both in time and in space. It appeared in Europe in the Neolithic Age, and was the main breed of domestic oxen in Europe

1. "Report of the 1910 Excavations at Corstopitum: Animal Remains," p. 104.

2. These latter have only five teeth in their lower jaws,

and a large portion of Asia throughout the whole of the Prehistoric Period; it is now represented by the small mountain cattle. In Britain it was the only domestic breed from the Neolithic Age down to the time of the English conquest.

C. SHEEP.

The remains of sheep consist of limb-bones, jaws, and fragmentary skulls. Many of these belong to fully adult animals, but, judging from the number of jaws with milk-teeth and of bones minus their epiphyses, young animals were also largely used for food. Of the lower jaws almost 500 more or less perfect specimens of the right side have been examined, in addition to large numbers of others too badly preserved to be of use in the compilation of this report. In the case of the limb-bones, also, all the young and indeterminate bones were first eliminated and a selection was then made from the remaining adult and perfect specimens. One noticeable feature amongst the limb-bones is the almost entire absence of breakages for the purpose of extracting the marrow, but many bones show marks of cutting by sharp instruments and several have been shaped or perforated for industrial purposes. The metacarpals and metatarsals, especially, show evidences of use in this respect, as described in Chapter XIII of this work relating to articles of bone (pp. 421-427).

As in the oxen, no actual associated remains are present, so it will be convenient to give a description of the limb-bones first.

Disregarding the Heather ewe, which, as pointed out by Pitt-Rivers, is rather abnormally developed, also the Hampshire Down ewe and the Dorset Horned ram, as too large in their bones, the Lake-village bones can be compared with the remaining three test animals used by Pitt-Rivers and with the Romano-British bones described by him.

The metacarpals (Table IX) present a range in length from 104 to 127mm. The majority are from 108 to 118mm. in length and are extremely slender in the shaft, agreeing exactly in build to the Romano-British specimens figured by Pitt-Rivers.¹ In addition to these there are a few short and more robust bones which are identical with the metacarpals of the St. Kilda ewe and St. Kilda ram figured on the same plate of Pitt-Rivers (figs. 8, 9). They are narrower than the Romano-British bones, figs. 6, 7, which from their coarse build appear to belong to goat and not to sheep as stated by Pitt-Rivers. A few long specimens agree with the Highland ewe (fig. 11), others with the Romano-British bones from Cranborne Chase (figs. 2, 3), while a solitary example minus the distal end, measuring 134mm., is like that of the Romano-British specimen (fig. 1), from Woodcuts.

The metatarsals (Table IX), one hundred and ten of which were selected for measurement, all adult, range from 109 to 136mm. in length. They are, without exception, slender in the shaft and traversed by a strong anterior groove, as in the Romano-British examples figured by Pitt-Rivers in his Plate CXLIII. Of these four agree with fig. 14 of that plate; two with fig. 15; two are the same length as fig. 15, but thin in the shaft like fig. 16; forty-one agree with fig. 16, possessing the same remarkable constriction of the shaft immediately above the distal articulation; about thirty-one bones agree with fig. 17; eight are like fig. 18; ten are shorter and thinner than fig. 20. The lengths of the majority, *i.e.* those agreeing with figs. 16 and 17, range from 120 to 130mm. Except as regards length none of the metatarsals agree completely with Pitt-Rivers' test animals, figs. 21-24, the latter being stouter in the shaft, and without the strong anterior groove.

The femora (Table X) range from 144 to 163mm. in length (over all), with a least circumference from 39.5 to 46mm., and therefore agreeing in length and build with the St. Kilda ewe at one extreme and the St. Kilda ram at the other, with a few intermediate sizes.

1. "Excavations in Cranborne Chase," II, Plate cxliii, figs. 4, 5.

Among the tibiae (Table X) the smallest bone is 163mm. (over all), and is therefore smaller than any of Pitt-Rivers' test animals. A few are equal to the St. Kilda ram, while others agree with the St. Kilda ewe in general build. The majority range from 180 to 195mm.

Of the humeri (Table XI) there are only a few adult bones preserved, the lengths ranging from 114 to 133mm. (over all). Some agree with the two forms just mentioned, but the majority are stouter in the shaft and more like the same bone in the Heather ewe.

The radii (Table XI), one hundred in number, all adult, range in length from 122 to 147mm. Only a small percentage of these are equal to the St. Kilda ewe at one extreme and the St. Kilda ram (or Highland ewe) at the other, while the majority range from 132 to 137mm.

In the Swiss Lake dwellings of the Stone Age, limb-bones of slender and graceful form have been found, according to Rüttimeyer, associated with skulls of a goat-horned type of sheep to which he gave the name of *Ovis aries palustris*. On comparing the Glastonbury remains with the published dimensions of the above, it is found that while the humeri agree fairly well in length and build, the radii are all shorter than the shortest bone of the "palustris" race, the majority being much shorter. The remaining bones, femora, tibiae, metatarsals and metacarpals, are, on the whole, smaller than the bones from the Neolithic deposits of the Swiss Lake dwellings, but many agree with the bones of a hornless race of sheep from the later (Bronze Age) deposit of Möringen, Lake of Bienne.

Of the skulls there are but few which permit of measurement. The majority of them are too imperfect to be of much service, consisting chiefly of maxillary portions with teeth, and frontal bones with horn-cores attached. All apparently belong to small skulls, but as they show striking differences in horn-cores, etc., they have been separated for detailed description into three series.

Series A (Table XII).—Of this group there are several more or less perfect half-skulls, as well as fragments, from which a series of approximate measurements have been obtained. There is also an almost complete skull (No. 4) of similar character which has every appearance of having been a child's toy or an emblem of some kind. In this specimen the whole of the bones (nasals, turbinals, etc.) along the cranio-facial axis, including the greater part of the occipital region, have been cut away as if for the purpose of inserting a pole. It would make a good head for a wooden cock-horse such as boys play with to-day. The description of this skull will serve as a general standard for the rest. As shown in the Plate XCVII, figs. 4 and 5, the skull possesses small goat-like horn-cores which are compressed laterally and have two somewhat blunt edges. These cores diverge outwards from the frontals at an angle of about 85° ; and have a slight backward curve. The length of the cores, measured along the upper curve is 84mm.; the long diameter at the base is 27.6mm.,—the short, 18.2mm.; circumference at base 78mm. The tips of the cores are about 160mm. apart. In cross-section the cores are flattish-oval, the anterior surface being moderately convex, the posterior almost flat. Except for a slight concavity above the nasal articulations the frontals are fairly flat; they form an angle of about 104° with the occipito-parietal region. The lachrymal bones and the upper portion of the adjacent malar bones are deeply impressed by a well-defined and sharply-bordered lachrymal pit, as though the bones had been indented by the end of one's finger. The upper and lower borders of the pit consist of almost parallel edges.

An excellent illustration of the type of skull represented by the above is that given by Rüttimeyer in his "Fauna der Pfahlbauten" (1861, p. 194). His figure is that of the skull of a turbary sheep, "Bündnerschaf," from the Oberland von Graubünden, and in size, horns, lachrymal pits and general characters the skull from the Lake-village agrees very closely. The only difference appears to be that the latter has a flatter forehead.

The imperfect state of the occipital region prevents many useful measurements being taken, but such dimensions as could be obtained are given in Table XII, along with others of further specimens pertaining to the same series. In no case was the total length of the skull obtainable owing to the imperfect premaxillae.

Except for variation in the dimensions of the horn-cores, probably due to sexual differences, all the examples agree in general details with the skull just described, though in a few cases the lachrymal pit is not so deep. The young horn-cores of this series are scabbard-like in appearance.

This group of skull remains appears to agree exactly with similar remains met with in the oldest Swiss pile-dwellings, Schaffis, Luscherz, Lattrigen, etc. This race, the so-called turbary sheep (*Ovis aries palustris* of Rüttimeyer), had tall thin legs and a skull with short upright horns like those of a she-goat.

As pointed out by Rüttimeyer and others the Bündner or Nalpser sheep of Canton Grisons are evidently closely related to, if not actually descended from, this breed.

Series B (Table XIII).—This series is represented by several horn-cores and a number of half-frontal bones bearing horn-cores of a much coarser texture and very different character to those just described. The cores are practically three-sided;¹ the posterior surface is very flat, the upper surface moderately flat, and the anterior surface convex. The two edges of the posterior surface are sharply keeled, while the junction of the upper and anterior surfaces forms a somewhat blunt keel. The cores curve outwards from the frontals and twist slightly upon themselves, differing in this respect from typical Mouflon (*Ovis musimon*) in which the cores curve in a single plane. They also possess a much flatter posterior surface, a coarser texture with larger nutritive foramina, and are more tapering and not so blunt-ended as in the latter sheep, being more of the nature of those belonging to the skull of a Scotch ram with curled horns in the Manchester Museum. (See Plate XCVII, fig. 6).

In the examples attached to frontals it is seen that the bases of the cores are wider apart than in the Mouflon, and their angle of divergence is also somewhat greater on the whole. In the skull of a Mouflon in the Manchester Museum the angle of divergence is about 90°; in the Lake-village series it varies from 84° to 114°, the average being 97°. Unfortunately the largest horn-cores have been cut away from the skull so that they tell us nothing as to their length or their angle of divergence. The dimensions of four of these large cores are given in Table XIII.

The frontal bones are of interest as they exhibit in most cases an overhanging thick crest, or intercornual ridge, between the horn-bases, which is not present in the skulls of Series A, nor in those of the Mouflon and Scotch ram in the Manchester Museum. The hinder part of the frontals is also broadly grooved at the base of each horn-core just before joining the parietal bone. The parieto-frontal angle is sharper than in Series A, it being from 94° to 96°. One specimen (R 2) fortunately possesses a complete orbit and this on comparison is seen to be somewhat smaller than the orbits of the skulls of Series A; it measures 34·8 by 31·4mm. In the Mouflon it is 41·9 by 38·5mm.; in the Scotch ram, 40 by 39·5mm.; while in the Series A skulls the average is 39·4 by 36·3mm.

The skull of this big-horned form does not appear to have been any larger than that of the previously described goat-horned form, and the lachrymal pit in both is very similar, though not so deep as that of No. 4 in Series A. The pit is essentially different from the large shallow ill-defined depression in the Mouflon skull.

Remains of large-horned domestic sheep, known as Studer's sheep (*Ovis aries studeri*), have also been met with in the pile-dwellings of the Lake of Bienne, and, excepting in their smaller size, the Lake-village specimens agree very closely with the description of large horn-cores of this race found at Greng, Lattrigen, etc.

This large-horned race is thought by some observers to have been closely akin to the wild Mouflon of Sardinia and Corsica. Rüttimeyer and others, however, considered it more nearly

1. Except in the largest specimens, where there is a tendency for the basal portion to be more rounded in section.

related to the large Spanish merino sheep. As already mentioned, the Lake-village examples differ in many ways from the Mouflon and present the features of the Scotch or Highland sheep, which in their horns are very like the merino race.

Millais, in his work on "The Mammals of Great Britain," states that the almost deer-like sheep living on the small island of Soay, near St. Kilda, may be the direct descendants of *Ovis aries stuederi* of the Swiss pile-dwellings, and other writers, including Ewart, have arrived at similar conclusions, *i.e.* that the Soay sheep represent the large-horned race of Roman camps, Romano-British villages and the Swiss lake-dwellings.

The skulls of Series B evidently possess a similar type of skull to that of the Soay sheep, as Professor Ewart has kindly examined the skulls of two Soay rams and reports that in both cases there is an intercornual ridge, rounded from before backwards, and divided into two by a mesial ridge formed by the suture between the frontals. In both the males and also in a female he examined there is a shallow groove between the base of the horn-core and the angle formed by the meeting of the frontal and parietal sutures. He further remarks that there is in fact very little difference in the region of the horn-cores in the Soay skulls and the skulls of a Sardinian Mouflon and a Daghestan Urial.

The four half-skulls of Series C belong to hornless sheep. They represent skulls of approximately the same size as those of Series A and possess a similar lachrymal pit and basi-occipital. The orbits, too, are similar in their dimensions, but their rims seem slightly more protuberant. One specimen possesses three well-worn molars which measure 40mm. in total length, the last molar being 15.8 by 11.3mm. The width of the palate at *M*₃ is only 34mm. The brain cavity is much the same as in Series A. On the frontal of this specimen there is a curious wart-like protuberance occupying the position of the horn-cores in horned skulls.

Owing to the fragmentary nature of the above specimens it is impossible to determine the exact relationship between them and the goat-horned or "Turbary" sheep skulls. Though possibly representing a hornless race, on the other hand they may belong to females of the "Turbary" sheep whose horns had become reduced. That this is likely is shown by the fact that among the skull fragments of Series A are one or two bearing remarkably short horn-cores.

A race of hornless sheep appears to have existed in the Bronze Age in the Swiss pile-dwellings at Möringen, on the Lake of Bienne. This race is considered as analogous to the hornless sheep of the Middle European lowlands, except that the latter have somewhat more robust bones. In the Bündner or Nalpser race, however, the horns are occasionally absent in the ewes, so that, like the goat-horned race, this hornless series may be more closely related to the Bündner sheep than to any other.

The lower jaws of sheep (Table XIV) are more numerous than any other bone of this animal, and those belonging to adults range in maximum length from 146 to 175mm., but each extreme is represented by one example only. The majority measure from 150 to 160mm. The length of the tooth-row varies from 59 to 74mm., but the proportionate length of this to the length of the jaws is not constant, as a jaw of 150mm. may have a tooth-row of 67mm., and a jaw of 161mm. only 65mm.; the variation in the total number of jaws is from 38 to 45%.

Ten of the lower jaws present the same variation as we have observed in the Oxen, in the absence of premolars. The molar series is consequently shorter than in the normal jaw. In the ten specimens examined the range is from 57 to 60.3mm. (Table XIV). The loss of *PM*₂ is probably due to domestication, as there appears to be no published records of this peculiarity in any wild sheep. It is, however, absent in both mandibles of *Capra ibex* in the Manchester Museum.¹

1. According to Dr. Andrews all the lower jaws of *Capra* in the British Museum have the normal six teeth.

Owing to the absence of associated remains it is impossible to decide as to which jaws belong to the "goat-horned" type of skull and which to the "big-horned" type. The same applies equally in the case of the upper jaw fragments in which the part supporting the horn-cores is missing. Both the upper and lower molars, however, show some diversity in build which may indicate that more than one series is represented.

D. GOAT.

The goat is represented among the Lake-village remains by about half-a-dozen more or less imperfect horn-cores. These differ from those of the sheep in possessing a more extended inner cavity reaching almost to the tip of the horn-core. They evidently belong to a small short-horned breed. Unfortunately their full lengths cannot be given as the cores appear to have been cut and shaped at their basal ends as if intended for handles of knives or tools. The lengths, etc., as they stand, of three of the best preserved examples are,—

Length.	Diameter at base.	Circumference at base.
120mm.	31 by 19mm.	82mm.
130mm.	28 by 17mm.	72mm.
118mm.	29 by 18.5mm.	74mm.

A short but rather broad left metacarpal may also be referable to goat, since it is broader and shorter than any of the sheep bones. In build and general appearance it much resembles Pitt-Rivers' Woodcuts specimen¹ referred in error to sheep. The bone is 103mm. in length, its least circumference 42mm., whilst the distal and mid-shaft widths are 23.5 and 14.5mm. respectively.

E. PIG.

The remains of pig are fairly numerous and consist of fragmentary skulls, lower jaws, and limb-bones. Three of the latter are associated bones, viz. a humerus, radius and ulna of the right side. The olecranon fossa of the humerus is perforated. As in the sheep, the limb-bones are generally intact, but the lower jaws are all broken and the skulls have been split down the middle and otherwise mutilated so that it is difficult to take precise measurements (see Tables XV—XVIII). A large number of the remains are those of young animals from sucking pigs upwards, but there are several jaws which belong to fully adult and in some cases old animals. These latter can readily be separated into male and female by the different degree in the development of the canines, etc. All the skulls appear to be of one type and are all of the same relative size. The lower jaws possess a very short symphysis and in this respect, as well as in various other measurements, they agree very closely with the "Torfschwein" or turbary pig (*Sus scrofa palustris*) of Rütimeyer from the Swiss lake-dwellings of the Neolithic period. In one jaw the anterior premolar ($\overline{PM1}$) has been shed and its alveolus is obliterated.

On comparing the limb-bones with those of the Black Cross-bred sow used by Pitt-Rivers as a test animal² it is found that they are much shorter in length. The skulls, too, are much smaller and narrower, though the length of the tooth-row is approximately the same. Compared with the "Torfschwein" the measurements of the teeth are somewhat smaller, but in the narrowness of the face (between the zygomata) one of the specimens from the Lake-village (Skull No. 1) is almost identical with the "Torfschwein," while others agree closely

1. "Excavations in Cranborne Chase," Plate cxliii, fig. 7.

2. *Op. cit.*, II.

with the Swiss sow of Rütimeyer's tables.¹ The height from the lower margin of the occipital foramen to the centre of the occipital protuberance in all the Lake-village skulls is not more than 106mm., which comes well within the limits given by Rütimeyer for the "Torfschwein," viz. 98—115mm.

F. DOG.

The complete skeleton of a dog was found among the decayed brushwood near the south margin of Mound XXXIII,² but the bones were so friable that it was impossible to remove them complete. Measurements, therefore, were taken as the bones lay *in situ*, and are given in detail at the page cited. The skeleton is apparently that of an animal less than 2 feet high at the shoulder. The dog is further represented by a number of lower jaws, fragmentary skulls and limb-bones found in various other situations. The lower jaws examined vary in length from 116 to 147mm., and in the larger examples the carnassial tooth is noticeably well developed. In one pair of jaws \overline{PM}_4 is absent on both sides and the alveoli are closed (see Table XIX). Compared with Pitt-Rivers' test animals the smaller jaws agree with those of the small-sized Fox Terrier, and the larger with those of the large-sized Retriever, 2 feet high at the shoulder. The majority, however, indicate a somewhat smaller animal than the latter. Of the skulls there are fragments representing at least five individuals, but none are perfect enough for full measurements to be taken. Two specimens are merely brain-cases, which are narrow and rather high when viewed from the back. They both possess a strongly developed sagittal crest towards the hinder part. Another specimen consists of a palatal portion more or less in perfect condition. In this example the palate has a length of 98mm., and a breadth of 52mm.; the full tooth-row is 73mm. (premolars = 55; molars = 18mm.); the carnassial tooth measures 19 by 10.5mm. The greatest width between the alveolar borders is 69mm.; the rostral breadth over the canines is 41mm. The fragment is strongly of the broad muzzle type. Four other upper right carnassial teeth measure 18.5 by 9.5mm.; 20 by 10.5mm.; 18 by 10.5mm.; and 18.5 by 11.7mm.

The limb-bones are few in number and their dimensions (Table XX) indicate a somewhat smaller dog than the large-sized Retriever of Pitt-Rivers.

VII. APPENDIX.

TABLES OF MEASUREMENT OF THE ANIMAL REMAINS FOUND IN THE VILLAGE.

The Tables of Measurements in the following pages are intended for use in ascertaining the range of the various animals by the detailed examination of similar refuse-heaps elsewhere. All the measurements are taken in millimetres. For the Limb-bones the following dimensions are taken :—

1. Maximum length (and in some cases the length between the articular surfaces in addition = 1 A).
2. Least circumference.
3. Transverse diameter of proximal articulation.

1. "Die Fauna der Pfahlbauten der Schweiz," 1861, p. 183.
2. Vol. I, p. 107.

4. Vertical diameter of proximal articulation.
5. Transverse diameter of distal articulation.
6. Vertical diameter of distal articulation.
7. Transverse width at middle of shaft.

Nos. 1 (maximum length) and 2 are useful for comparison with the Romano-British remains described by Pitt-Rivers from Woodcuts and Rotherley.

Owing to the different points of measurement adopted by the various authors, it has been found necessary to give rather more measurements than usual in order that due comparison can be made. For instance Pitt-Rivers measured over all in taking the length of the limb-bones, except in the case of the tibia where allowance was made for the spine. Others have taken the length between the articular surfaces and compared the result with Pitt-Rivers' tables, overlooking the fact that the discrepancy in some bones is considerable. The articular surface measurement seems the most satisfactory, and is in many cases the only one available as regards length, the spinous extensions of the femora and humeri, for example, being often broken away.

The length between the articular surfaces is taken at the following points in the various bones :—

Femur.—Between the head and the inner distal condyle.

Tibia.—Between the inner proximal and distal articulations (*i.e.* to centre of groove for astragalus).

Humerus.—Between the head and lower condyles.

Radius.—Between the inner proximal and distal articulations.

Phalanges i and ii.—Between the centre of proximal groove to centre of distal groove

Phalanx iii (hoof-core).—From the centre of proximal articulation to point of toe.

NOTE. (Ca.) = *Circa*: about. Used in Tables when the exact measurement is doubtful.

TABLE I.

HORSE.

SERIES I.				Length.	Length between articular surfaces.	Circumference.	Prox. articulatn. Transverse	Prox. articulatn. Vertical.	Distal articulatn. Transverse	Distal articulatn. Vertical.	Transverse width of shaft.
ONE INDIVIDUAL.				I	IA	2	3	4	5	6	7
(Fore)											
Metacarpal	...	...		204	—	79	43·7	26·6	44	32	28·7
Phalanx i	...	...		77	62·7	80	44·5	26	39	22·6	30
„ ii	...	...		39·5	29·2	—	40·6	23	44·9	23	39
„ iii	...	...		—	40·5	—	42·3	22·6	—	—	—
(Hind)											
Metatarsal	...	...		246	—	80	43	32	44	33	25·5
Phalanx i	...	...		72·7	58·4	78	45	26	37·3	22	27·2
„ ii	...	...		41·3	30	—	39·4	23·7	40·7	23	36·2
„ iii	...	...		—	40	—	40	22·5	—	—	—
							Max. width, tibial articulation.	Width, navicular articulation.			Height, navicular articulation.
Astragalus	...	...		50·5	—	—	41·7	46			30

TABLE II.

HORSE.

SERIES 2.				Length.	Length between articular surfaces.	Circumference.	Prox. articulatn. Transverse	Prox. articulatn. Vertical.	Distal articulatn. Transverse	Distal articulatn. Vertical.	Transverse width of shaft.
ONE INDIVIDUAL.				I	IA	2	3	4	5	6	7
Metacarpal	...	...		197	—	84	44	26	42	30	30·5
Phalanx i	...	...		76	63·5	82	42	24	36·6	20	30·5
„ ii	...	...		38·5	30·5	104	38·5	20	41·7	22·7	39
„ iii	...	...		—	41·5	—	41	22	—	—	—
SERIES 3.											
ONE INDIVIDUAL.											
Metatarsal	...	...		234	—	75	40	29·6	39·6	30·5	24
Phalanx i	...	...		65	53·3	80	41	23	35	20	27
„ ii	...	...		39·6	28·6	102	37	21	39	22	36
„ iii	...	...		—	40·5	—	39	19·5	—	—	—
							Max. width, tibial articulation.	Width of navicular articulation.			Height of navicular articulation.
Astragalus	...	...		46	—	—	40	41·7			26·8
							Height, fibular articulation.	Width, fibular articulation.			
Calcaneum	...	...		88	—	84	40	40			—

TABLE III.

HORSE.

	Length.	Circum- ference.	Prox. articulation. Transverse.	Prox. articulation. Vertical.	Distal articulation. Transverse.	Distal articulation. Vertical.	Transverse width of shaft.
	1	2	3	4	5	6	7
METACARPALS—							
L.	201	85	41.7	27.5	44.2	33	30.6
L.	196	83	42.4	29.3	44.3	31.8	28.7
L.	183	77	38	23	39.5	29.5	28
R.	185	70	39.7	28	39.5	30	25.2
R.	191	81	40.6	27.5	42.1	30	27
R.	187	77	—	—	42(ca.)	29(ca.)	25
METATARSALS—							
L.	237	85	41	36(ca.)	41.5	31.6	26.7
L.	248	75	43.7	34	43.2	33	25.5
L.	235	80	43.4	32.4	42.5	33	25.8
R.	230	85	42	32.5	41.6	31	26.3
R.	227	77	40	32	40.7	30	25.7
R.	239	89	42	34.8	43.5	33.4	28.5

TABLE IV.

HORSE.

					No. 1.	No. 2.
SKULLS.						
Facial length ¹	...	...	...	...	327	—
Frontal width	...	...	...	...	198(ca.)	—
Frontal index	...	...	...	...	60.5	—
Premaxilla length	...	...	...	...	167	—
Length of 6 cheek-teeth	...	...	...	...	165	—
Premolar 1	...	...	...	...	absent	alveolus present.
Size of \overline{PM}_4	...	...	...	...	28 × 27	28 × 26
Length of pillar, \overline{PM}_4	...	...	...	...	10	11.5
Size of \overline{M}_1	...	...	...	...	24 × 27	24.5 × 24.5
Length of pillar, \overline{M}_1	...	...	...	...	11	12
Size of \overline{M}_2	...	...	...	...	25 × 25	—
Length of pillar, \overline{M}_2	...	...	...	...	11.5	—
Width across incisors	...	...	...	...	66	69.5
Least width behind incisors	...	...	...	...	44.7	39.8
Distance \overline{PM}_2 to \overline{I}_3	...	...	...	...	74	81
Distance \overline{PM}_2 to Canine	...	...	...	...	51	59

1. Distance from line connecting supra-orbital foramina to alveolar point.

TABLE V.

OX.

	Length.	Circum- ference.	Prox. articulation. Transverse.	Prox. articulation. Vertical.	Distal articulation. Transverse.	Distal. articulation. Vertical.	Transverse width of shaft.
	1	2	3	4	5	6	7
METACARPALS—							
L.	158	78	46	28	50	26	27
L.	164	89	49	30	56	31	32
L.	169	89	52	30	57	30	32
L.	179	78	45	29	51	28	27
R.	163	72	41	25	45	26	27
R.	166	75	47	27	49	27	26
R.	167	92	53	29	61	28	33
R.	169	89	53	30	57	29	32
R.	174	90	51	30	58	30	32
R.	175	80	47	29	50	28	28.5
R.	178	94	57	34	63	32	33
R.	181	76	44	27	49	28	26
METATARSALS—							
L.	188	73	38	36	45	26	22
L.	188	85	41.5	41	55	28	26
L.	189	77	40.5	40	51	27	22
L.	190	76	36.5	36.5	45	27	20.5
L.	198	88	41	41	53	29.5	25.5
L.	200	78	38	36	45	27	25
L.	203	74	38.5	38.5	46.5	28	19.5
L.	206	77	39.5	39	48	28	22.5
R.	185	90	—	—	53	30	28
R.	188	73	39	35.5	44.5	26.5	22
R.	193	77	38.5	37	47	27	21.5
R.	193	90	44	40	52.5	28	26
R.	199	76	38	37	45.5	27	21.5
R.	201	90	44	43	55	27	27
R.	202	79	39	36.5	44.5	27.5	25
R.	203	85	42	—	48	29	26

TABLE VI.

OX.

	Length (outer curve).	Circumference at base.	Longitudinal diam. at base.	Transverse diam. at base.	Remarks.
HORN-CORES—					
R. loose	205	161	58	42	} very robust.
R. „	195	190	74	47	
L. with part of skull	—	173	67	43	
R. „	112	137	52	35	} very conical.
L. „	80	113	43	28	
R. „	78	96	36	24	
R. „	72	140	51	39	
R. „	135	134	51	31	
L. „	86	110	45	26	} very round. upper edge keeled. flattened. do.
R. „	100	110	39	32	
R. „	80	115	43	26	
R. „	90	100	35	31	
R. „	85	118	50	24	
R. „	90	140	56	27	
L. „	57	96	41	19	

TABLE VII.

OX.

	No. 1.	No. 2.	No. 3.	Pitt-Rivers' "Kerry."
SKULLS.				
Length from pole to alveolar point	380 (ca.)	—	—	408
Length from pole to centre of line joining upper margins of super- ciliary foramina	94	—	106	92
Length from pole to centre of line joining upper margins of orbits	119	—	130	125
Length from basion to alveolar point	345 (ca.)	—	—	379
Least frontal width	133	—	147	145
Least parietal width	101	113	—	95
Maximum width between zygomata	164	—	—	170
Maximum bi-orbital width ...	173	—	185	185
Minimum inter-orbital width ...	119	—	136	130
Greatest height between lower margin of occipital foramen and summit of pole	130	146	—	143
Length occupied by molars and premolars	123	121	—	124

TABLE VIII.

OX.

LOWER JAWS— (Normal=6 teeth).			Greatest length from back of con- dyle to tip of in- ferior maxillary.	Greatest length from summit of coronoid process to lowest part of angle beneath it.	Least depth of jaw behind the molars.	Least depth of jaw behind the incisors.	Length occupied by molars and premolars.
No. 2	...	...	363	187	63	24	122
" 3	...	...	348	—	56	24	130
" 4	...	...	350 (ca.)	186.5	63	27	129
" 5	...	...	352 (ca.)	182.5	62	25	130
" 7	...	...	350	—	64	25	132
" 8	...	...	355	—	68	26	129
Pitt-Rivers "Kerry"			340	203	69	25	129
LOWER JAWS—(Abnormal = 5 teeth).							
No. 9	...	...	337	188	66	24	128
" 10	...	...	325	185	60	25	118

TABLE IX.

SHEEP.

		Length.	Circum- ference.	Prox. articulation. Transverse	Prox. articulation. Vertical.	Distal articulation. Transverse.	Distal articulation. Vertical.	Transverse width of shaft.
		1	2	3	4	5	6	7
METACARPALS—								
	L.	105	34	18.4	12.8	20.4	12.8	11.1
	L.	107	32	18.6	13	21.5	13.7	10.7
	L.	109	32	18	13	20.2	13.2	10.4
	L.	112	29	17	12	20	13.5	9.2
	L.	116	36	19	13.5	22	13.5	12.3
	R.	119	37	18.2	13	21.5	14	11.2
	L.	122	40	20.3	15.2	24.3	14.2	13.3
	R.	124	37	20.2	13	22	14	12.6
	L.	126	38	19.6	13.7	22.7	14.2	12.5
	R. ¹	134 ²	40	21	13.6	—	—	13.6
METATARSALS—								
	L.	109	29	15.5	14.4	18	11.4	9
	L.	112	30	16.8	16.1	20.5	12.7	9.6
	L.	115	29	17	17	19.6	13	9.4
	R.	117	29	17.6	17.5	21.3	14.2	9.7
	L.	125	25	17	16.7	20.5	14	8.7
	L.	127	32	17.5	17.5	20.5	14	10.2
	R.	129	33	18	17.1	21.5	14.4	9.5
	L.	132	35	18	17.4	21.6	14.6	11
	L.	136	35	18	17.5	20.5	13.8	11.1

1. Minus distal condyles ; the extreme length is, therefore, uncertain.

TABLE X.

SHEEP.

		Length.	Length between articular surfaces.	Circum- ference.	Prox. articulatn. Transverse.	Prox. articulatn. Vertical.	Distal articulatn. Transverse.	Distal articulatn. Vertical.	Transverse width of shaft.
		I	IA	2	3	4 ¹	5	6	7
FEMORA—									
	L.	144	142	40	36	16.5	31.5	40	12
	R.	150	147	42.5	38.5	17.5	32	40	13
	R.	153	150	40	36	17	31	39	13
	L.	158	155	41.5	39	17.5	31	40.5	12.5
	R.	—	157	46	36	17.5	33	40	14.5
	L.	163	160	42	38	17.5	33	43	12.5
TIBIAE—									
	L.	163	155.5	31.5	31.5	31.5	19	15.5	11
	R.	167	160	32	33	31	21	15.5	11
	L.	169	162	33	33	32	21	17	11.5
	R.	173	167	32	33	—	20	16	11.5
	L.	176	170.5	33	33	32	20	17	11.5
	R.	179	173	34	33.5	33	20.5	16.5	13
	L.	183	176	34	33	35	20.5	16	12
	L.	189	181.5	37	34	35	22	18	14
	R.	194	187	36	33	35	22.5	17	13.5
	L.	199	191	35	34	35	21	17.5	12
	R.	203	196	38	35	32	23	17	12.5

TABLE XI.

SHEEP.

		Length.	Length between articular surfaces.	Circum- ference.	Prox. articulatn. Transverse.	Prox. articulatn. Vertical.	Distal articulatn. Transverse.	Distal articulatn. Vertical.	Transverse width of shaft.
		I	IA	2	3	4	5	6	7
HUMERI—									
	L.	114	101	40	30	33	24	21	12
	R.	118	108	43	28	34	22	19.5	11.5
	R.	125	111	42.5	31	35	24	21	11.5
	L.	126	114	44	—	39	25	22	12
	R.	129	116	44	32	36	24	20.5	12
	L.	131	117.5	44	33	39	25.5	22.5	12
	R.	133	119.5	46	35	41	27	23	13.5
RADII—									
	R.	122	—	36	24	11.5	19	12	12.5
	R.	124	—	32.5	23	12	19	14	11.5
	R.	127	—	34	25.5	14	20	13	13
	R.	130	—	35	25	12	21	15	13
	R.	133	—	40	23.5	13	19	14	14
	L.	136	—	42	25.5	13	20.5	14	15
	L.	139	—	—	24	12.5	20.5	15	13.5
	R.	142	—	40	25.5	13.5	21	15.7	13.7
	L.	145	—	40	27	15	22	17	14.5
	L.	147	—	—	27	13.5	24.5	19	16

1. Vertical diameter of head.

2. Over all spines.

3. No. 5 is taken minus the distal end of the ulna, which is often present.

TABLE XII.

SHEEP.

SKULLS. SERIES A.	1	2	3	4	5	6	7	8
Distance between occipital condyles and frontal at level of superciliary foramina ...	99	100	99	—	106	—	100	—
Least frontal width between horns and orbits ...	74	70	79	70	84	74	80	72
Max. bi-orbital width ...	109	99 (ca.)	102	105	108	100	100	100
Min. inter-orbital width ...	62	60 (ca.)	67	66	66	60	59	64
Length of orbits ...	40.5	39.3	40.8	37	—	38	—	—
Height of orbits ...	37.7	36	36	35.5	—	35.4	—	—
Max. zygomatic width ...	95.5	90 (ca.)	96 (ca.)	97.5	—	—	—	—
Length of brain-cavity ...	76	75	76	—	78	—	75	—
Height of brain-cavity ...	45	42	45	—	42	44	45	—
Width of brain-cavity ...	56	60	54	—	54	50 (ca.)	54	—
Length of tooth-row ...	63	62	64	61.5	—	—	—	—
Length of molars ...	42	40	43	40	—	—	—	—
Length of premolars ...	21	22	21	21.5	—	—	—	—
Length and width of M_3 ...	17 × 11	14.5 × 9.5	16 × 9.5	14.2 × 9.3	—	—	—	—
Width of palate at PM_2 ...	30	26	—	25.5	—	—	—	—
Width of palate at M_2 ...	40	38	—	35.7	—	—	—	—
Length of horn-core (upper curve) ...	65	113	63+	84	100+	90	97 (ca.)	97
Basal circum. of horn-core ...	83	87	87	78	101	78	80	77
Long diam. of horn-core (at base) ...	32.7	31.5	33	27.6	38.5	30	32	29.5
Short diam. of horn-core (ditto) ...	18.5	24	17.5	18.2	26	20	20	17
Divergence of horn-cores ...	80°	90° (ca.)	90° (ca.)	85°	90°	84°	86°	82°
Parieto-frontal angle ...	100°	100°	110°	104°	107°	103°	107°	106°

TABLE XIII.

SHEEP.

					HORN-CORES			
SKULLS. SERIES B. (Frontal-pieces).	Least frontal width between orbits and horns.	Maximum bi-orbital width.	Minimum inter-orbital width.	Parieto-frontal angle.	Length (upper curve).	Basal circumference.	Basal diameters.	Divergence.
L1. ...	—	—	—	94°	105+	118	45 × 32	—
L2. ...	73	96	62	95°	95+	100	40 × 27	114°
L3. ...	—	—	—	95°	110+	105	39 × 32	—
L4. ...	82	96	64	95°	80+	124	45 × 35	84°
L5. ...	80	102	61	—	105+	115	43 × 31	94°
L6. ...	73	88	59	95°	90+	100	36 × 25	98°
L7. ...	—	—	—	—	112+	121	44 × 32	—
L8. ...	76	—	—	94°	128	113	40 × 32	105°
R1. ...	83	—	61	96°	135	122	48 × 32	84°
R2. ¹ ...	82	102	60	96°	107+	114	42 × 31	105°
R3. ...	—	—	—	95°	105+	123	46 × 35	105°
R4. ...	83	96	65	95°	97+	118	43 × 32	94°
R5. ...	72	97	59	—	90+	112	42 × 30	96°
LOOSE CORES—								
R. ...	—	—	—	—	232+	144	50 × 42	—
R. ...	—	—	—	—	185+	138	48 × 41	—
R. ...	—	—	—	—	175+	125	45 × 37	—
L. ...	—	—	—	—	170	129	46 × 35	—

1. With complete orbit, see text.

TABLE XIV.

SHEEP.

LOWER JAWS.		Length, condyle to tip.	Depth behind \overline{M}_3 .	Least depth behind incisors.	Length of tooth-row.
(Normal = 6 teeth).					
L.	...	146	31.5	10.5	65
L.	...	150	35.2	10.7	64.5
L.	...	150	35	12	67
L.	...	156	29.5	11.4	64.5
R.	...	156	35.7	12.2	71
L.	...	159	32.5	11	62
L.	...	161	35	12.2	65
R.	...	165	35.5	12.3	66
L.	...	172	39.5	13.2	74
R.	...	175	38	14	73
LOWER JAWS. (Abnormal = 5 teeth).					
L.	...	—	32.5	13.4	57.7
R.	...	—	33.6 (ca.)	10.4	57 (ca.)
R.	...	157	30.3	11.5	57.9
R.	...	157	33.8	11.7	57.9
R.	...	157+	33	11	58.2
R.	...	143+	33.7	10.2	58.8
R.	...	—	—	10.4	59.3
R.	...	—	—	12.1	58.3
R.	...	—	—	10.4	60.3
R.	...	—	33.8	10.9	60.3

TABLE XV.

FIG.

			Length.	Length between articular surfaces.	Circum- ference.	Prox. articulatn. Transverse	Prox. articulatn. Vertical.	Distal articulatn. Transverse	Distal articulatn. Vertical.	Transverse width of shaft.
ASSOCIATED BONES—			I	IA	2	3	4	5	6	7
R.	Humerus	...	191	168	72	45.5	60	32.5	38	18
R.	Radius	...	138	—	47	26	18	27	15.5	18.5
R.	Ulna	...	189	—	—	20.3	24	11.2	8.7	—
RADI—										
L.	...	...	135.5	—	48	27	18	27	17	18
L.	...	...	137	—	48.5	28	18.5	28.5	18.5	17
R.	...	...	142.5	—	49.5	27	19	29	17	18.5
R.	...	...	138	—	49.5	27	17	28	18	19
HUMERUS—										
L.	...	...	181	156	68	43	57.5	28.5	35.5	15.5
TIBIA—										
L.	...	...	181	173	52.5	42	40	25	23	17

TABLE XVI.

FIG.

				Length.	Height at fibular articulation.	Width.
CALCANEAE—						
L.	...	...	...	75.5	27	19.5
L.	...	...	...	77	29	20
L.	...	...	...	86	30.5	20
R.	...	...	...	70	27	17
R.	...	...	...	77	29.5	19.5
R.	...	...	...	83	31	21.5
				Length (inner side).	Width tibial articulation.	Width scaphocuboid articulation.
ASTRAGALI—						
L.	...	...	...	35.7	18.5	23
R.	...	...	...	33.8	17.6	22.4
R.	...	...	...	37.5	20	24.7
R.	...	...	...	36.8	20.3	25.1
				Length.	Maximum diameter glenoid.	Least diameter of neck.
SCAPULAE—						
L.	...	...	...	184	26.2	24
L.	...	...	...	171+	25.9	22.8
R.	...	...	...	205	28.6	28.4
R.	...	...	...	188	27	23.4
R.	...	...	...	178	25.9	24.4
R.	...	...	...	177+	26.3	22

TABLE XVII.

FIG.

				I	2	3	4	5	P.R. Cross-bred Sow.	P.R. Wild Boar.
SKULLS—				F.	M.	F.	M.	M.	F.	M.
Length from centre of occipital protuberance to centre of line joining upper margins of superciliary foramina ...				103	—	103	—	—	114	138
Least width of parietal between occipital protuberance and orbits ...				23	—	34	—	—	37	26
Maximum zygomatic width ...				127	138	—	—	—	176	158
Maximum bi-orbital width ...				88	96	100	—	—	119	112
Minimum inter-orbital width ...				68	68	70	—	—	94	84
									Torfschwein (Rütimeyer).	
									M.-F.	
Length of Tooth-row ...				103	103	96	106	107	116-120	
" " 3 molars ...				62	62	58	65	67	65-77	
" " <u>M₃</u> ...				28	27.5	27	33	33	30-40	
" " <u>M₂. 1. PM₄. 3</u> ...				56	54	50	56	58	59-68	
" " <u>PM₄. 3. 2. 1</u> ...				41	41	38	41	40	45-48	
Diameter of Canine-alveolus ...				14 (ca.)	20 (ca.)	14	20	20	16-22	

TABLE XVIII.

FIG.

	1	2	3	4	5	6	7	8	9	Torfschwein (Rüttimeyer).
LOWER JAWS—										
Sex	F.			F.	F.	F.	M.	M.	M.	
Length at alveolar border	224	—	—	—	—	—	—	—	—	245-250
Height of vertical branch	99	109	107	—	—	—	—	—	—	99-105
Breadth of vertical branch under condyle ...	59	58	62	—	—	—	—	—	—	59-62
Height of ramus in front of $\overline{PM_2}$...	38	—	—	—	41	40	49	47	—	37-46
Height of ramus behind $\overline{M_3}$...	48(ca.)	48	43	—	—	—	—	—	—	38-42
Length of symphysis ...	60	—	—	64	62	61	76	72(ca.)	71	62-79
Breadth over canines ...	48	—	—	45.5	43.5	42(ca.)	51(ca.)	54(ca.)	49(ca.)	34-53
Length of Tooth-row ...	120	—	—	—	—	—	—	—	—	123-128
Length of Tooth-row with- out $\overline{PM_1}$...	99	—	—	—	—	—	—	—	—	102-112
Length of 3 molars ...	65	57	62	—	—	—	—	—	—	65-74
Length of $\overline{M_3}$...	33	29	30	—	—	—	—	—	—	33-37
Length of $\overline{M_2}$, 1. $\overline{PM_4}$, 3	58	—	—	—	—	—	—	—	—	55-64
Length of $\overline{PM_4}$, 3. $\overline{2}$...	34	—	—	32.5	35	—	35	35	33	35-40
Distance between $\overline{PM_1}$ and $\overline{2}$... ¹	15	—	—	6	6	10	14	10	2	10-13
Distance between $\overline{PM_2}$ and $\overline{I_3}$... ¹	44	—	—	38	35	39.5	51	45	48	37-47
Greater diam. of canine- alveolus ...	13.5	—	—	13	14	15	18	19	20	10-17
Distance from canine-al- veolus to point of symphysis ...	32	—	—	32	32	29	38	33(ca.)	30	30-37

1. Teeth and alveoli not included.

2. $\overline{PM_1}$ shed and alveolus obliterated.

TABLE XIX.

DOG.

		Length condyle to tip.	Height from coronoid to lowest point below.	Depth behind molars.	Depth in front of premolars.	Length of Tooth- row.	Carnassial $\overline{M}1$.
LOWER JAWS—							
Pair	No. 1	147	56	29.5	20	78	missing.
"	" 2 ¹	134	50	28	20	71	20 × 9
L. ramus	" 3	146+	56.5	29	23	80.5	21 × 9.5
L. "	" 4	—	—	—	18.5	74	22 × 9.5
L. "	" 5	116	41	23	16	62.5	18 × 7.5
R. "	" 6	—	51+	28	—	77 (ca.)	26 × 11
R. "	" 7	130	51	28	19	71	22.5 × 10
R. "	" 8	135	50	28	20	77	missing.
R. "	" 9	—	—	—	19	76 (ca.)	22 × 10
R. "	" 10	—	50	26	—	—	24 × 9.5

TABLE XX.

DOG.

			Length.	Length between articular surfaces.	Circum- ference.	Prox. articulatn. Transverse	Prox. articulatn. Vertical.	Distal articulatn. Transverse	Distal articulatn. Vertical.	Transverse width of shaft.
			1	1A	2	3	4	5	6	7
FEMORA—										
	pair	...	179	—	46	36.5	22	30	33	13.8
	R.	...	165	—	36	34.7	16.5	29	33	11.5
TIBIAE—										
	L.	...	173	165	37	32.5	36	20	15	10
	R.	...	169	160	39	32.5	36	20	15	10.5
	R.	...	—	—	35	—	—	22	16	11
	pair	...	168	162	37	31	34	21	15	12
HUMERI—										
	R.	...	149	146	42	24	36.5	21	23	11
	R.	...	—	—	43	—	—	23	24.5	12
RADII—										
			148	—	31	24.7	14	19.5	11.7	11.7

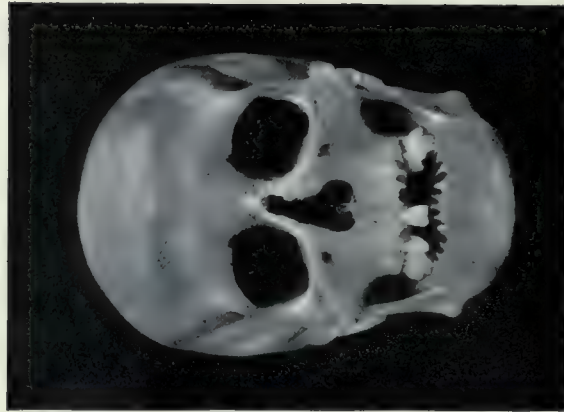
1. No. 2. \overline{PM}_4 absent on both sides and alveoli closed; \overline{PM}_3 also absent on right side and alveolus partially obliterated.

PLATE XCVIII.

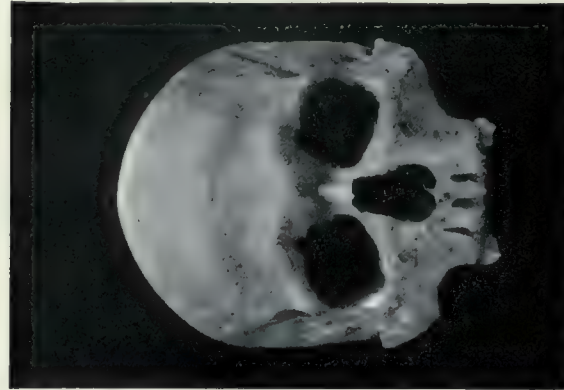
1



2



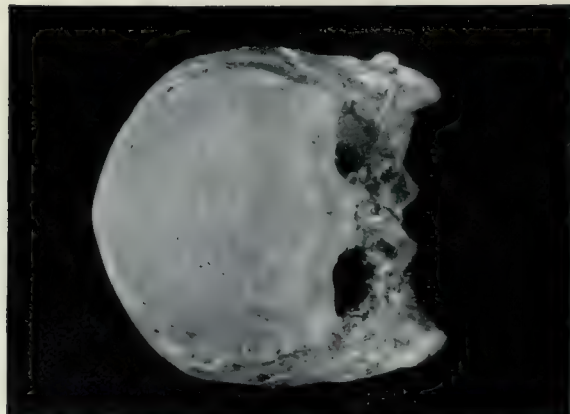
3



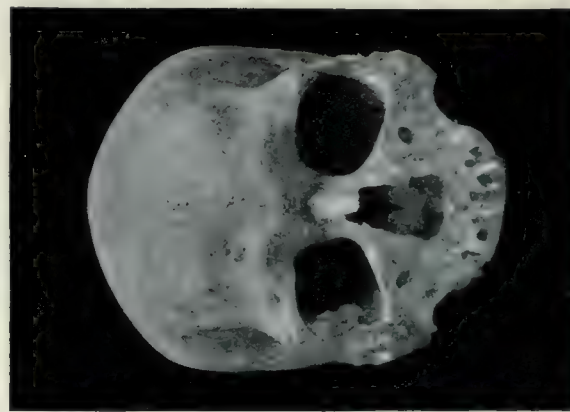
4



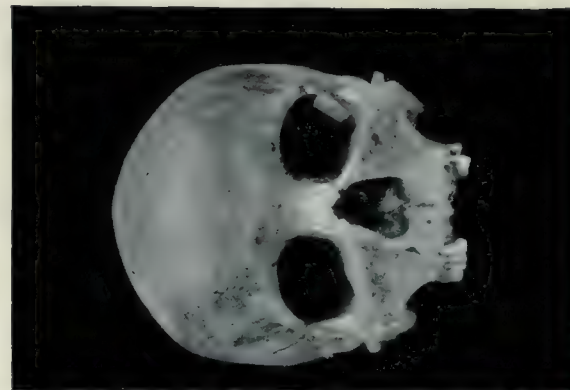
5



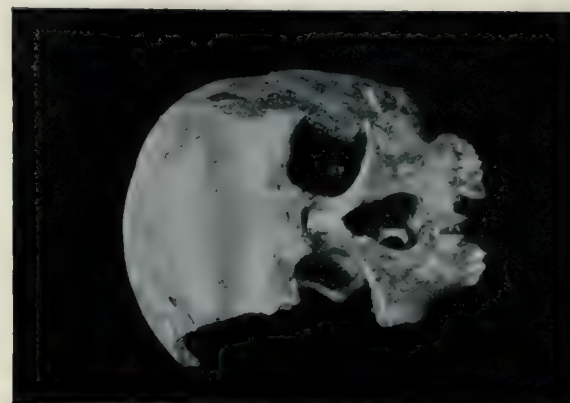
6



7



8



NORMA FACIALIS.

1, 2, 3, 4, Human Skulls from the Glastonbury Lake Village. 5, Neolithic Cave of Perthi Chwaren. 6, Bronze Age Skull, Gop Cave. 7, 8, Mykenæan Skulls, Caves of Zakro, Crete.

CHAPTER XXVII.

THE INHABITANTS OF THE LAKE VILLAGE.

By W. BOYD DAWKINS, M.A., D.SC., F.R.S.

- I. INTRODUCTION.
- II. THE DISTRIBUTION OF HUMAN REMAINS IN AND OUTSIDE THE PALISADES.
- III. THE DISTRIBUTION IMPLIES A MASSACRE.
- IV. THE DESCRIPTION OF THE CRANIA.
- V. THE MEASUREMENTS OF THE CRANIA AND THEIR COMPARISON WITH THOSE FOUND IN OTHER PREHISTORIC AND IN ROMANO-BRITISH SITES.

I. INTRODUCTION.

THE wonderful civilization of the Lake-village, with its arts and crafts, and its close connection with the culture of Southern Europe in the Prehistoric Iron Age, has been unfolded in minute detail by Dr. A. Bulleid and Mr. St. George Gray in the preceding pages. The cultivated and wild plants have been dealt with by Mr. Clement Reid, the birds by Dr. C. W. Andrews, and the domestic and wild animals by Mr. J. W. Jackson and myself. It now falls to me to deal with the further question as to the physique and ethnology of the inhabitants, and their relation to the general population of Somerset and the south of England, in the period immediately before the Roman conquest. The evidence is scant, and the problems raised by it can only be treated in outline, to be filled in by future discoveries, such as those now being made in the neighbouring Lake-village of Meare.

II. THE DISTRIBUTION OF THE HUMAN REMAINS.

The first thing to be considered is the distribution of the human remains in the settlement and outside the palisaded borders. The total number of finds recorded in the catalogue is 44. Those within the palisades are as follows:—

M 1. Fragments of an adult skull, 22ins. below the surface in the brushwood, 13ft. w. of the c.p. (central picket) of Mound XLIV, 1893.

M 2. Humerus, found at a depth of 25ins., 10½ft. N. of the c.p. of Mound XXV, 1893.

- M 3. Two teeth, 7ft. N. of the c.p. of Mound XXII, 1893.
 M 4. Decayed tooth, 20ft. S.E. of the c.p. of Mound XXII, 1893.
 M 5. Fragment of mandible, 27ft. E.N.E. of the c.p. of Mound XVIII, 1894.
 M 8. Cranium, in peat near palisades, 27½ft. E. of the c.p. of Mound XVIII, 1894. It belongs to the same individual as the mandible, M 5. (Plates XCVIII, XCIX, C, CI, fig. 3.)
 M 9. Fragment of cranium, 17ft. S. of the c.p. of Mound XLIX, 1894.
 M 10. Fragment of cranium of young adult, among brushwood, 18½ft. N. of the c.p. of Mound XLIX, 1894.
 M 21. Skull, humerus, ulna, radius and two ribs of young child, in brushwood, 7ft. S. of the c.p. of Mound LVI, 1896.
 M 25. Skeleton of baby, in peat, 17ft. N.W. of the c.p. of Mound IX, 1896.
 M 26. Portions of adult skeleton, much broken, in brushwood at eastern edge of Mound IX, 20ft. E. of the c.p.
 M 27. Fragments of parietal, in peat, 27½ft. N.W. of the c.p. of Mound IV, 1896.
 M 28. Part of child's skeleton, in black earth, 13¼ft. W.S.W. of the c.p. of Mound II, 1897.
 M 29. Fragment of mandible, among timber in substructure, 15¼ft. W. of the c.p. of Mound V, 1898.
 M 30. Part of cranium of young adult, in brushwood, 7¾ft. E. of the c.p. of Mound XXXVIII, 1898.
 M 31. Tooth, 5½ft. S.W. of the c.p. of Mound XLI, 1898.
 M 32. Tooth, 16½ft. N.N.W. of the c.p. of Mound XXIX, 1898.
 M 33. Skeleton of young child, distributed over an area of one square yard in peat, 17ft. W. of the c.p. of Mound XXXVIII, 1898.
 M 36. Fragment of humerus, under clay, 6½ft. N. of the c.p. of Mound LXX, 1905.
 M 37. Portions of skeleton of infant, under clay, 7½ft. N.N.W. of the c.p. of Mound LXX, 1905.
 M 38. Portion of skeleton of infant, under clay, 9½ft. E.N.E. of the c.p. of Mound LXX, 1905.
 M 40. Fragments of cranium, in the substructure, 6½ft. N. of the c.p. of Mound LXXIII, 1906.

All the above were found either in the substructures of the mounds or in the spaces between them.

The following were met with on or in the floors of the huts themselves :—

- M 12. Tibia, gnawed by dogs, on Floor ii of Mound XVIII, 14½ft. N.W. of the c.p., 1895.
 M 13. Burnt cranial fragments, close to S.W. margin of Mound XVIII, 9¾ft. W.S.W. of the c.p., 1905.
 M 22. Child's skeleton, on surface of Floor iv of Mound LVII, 4ft. N. of the c.p., 1896.
 M 34. Upper portion of cranium of young adult, with marks of wounds that have eaten thoroughly into the outer table of the right and left parietals, on Floor iv of Mound XXXV, 7ft. N. of the c.p., 1898.
 M 35. Fragments of parietal, on Floor i of Mound LV, 17¾ft. S.W. of the c.p., 1904.
 M 39. Fragments of skeleton of infant, on Floor ii of Mound LXXI, 9ft. S.W. of the c.p., 1905.

To this list of human remains must be added an occipital bone (Plate CI, figs. 9, 10) fashioned

into a rounded concavo-convex disc (67 to 70mm. in diam.) with a round hole in the centre (varying from 10 to 13mm.) comprising the area from the inion to the sagittal suture. The edges have been rounded by grinding, and the whole surface is worn and polished by long use. It has probably been an amulet. (See also p. 405, and Plate LXIII, B 59.)

The human remains found outside the palisades are much more perfect than those within the Village. They are as follows :—

M 6. Cranium and mandible, $2\frac{1}{2}$ ft. below the surface of the peat, 8ft. outside the palisades, $17\frac{1}{2}$ ft. s.e. of the c.p. of Mound I, 1894. (Plates XCVIII, XCIX, C, CI, fig. 1.)

M 7. Occipital bone, 5ft. below the surface of the peat, 26ft. n. of the c.p. of Mound XLVI, outside palisades, 1894.

M 7A. Right parietal, in peat outside palisades, 22ft. n.n.e. of the c.p. of Mound XLVIII, 1894.

M 7B. Left parietal, in peat outside palisades, 28ft. n.e. of the c.p. of Mound XLVIII, 1894.

All these three belong to the skull of one young adult.

M 14. Cranium of young adult, $1\frac{1}{2}$ ft. below the surface of the peat outside palisades, 34ft. s.w. of the c.p. of Mound LXXVI, 1895.

M 15. Perfect cranium, in peat 7ft. from palisades, and 27ft. w. of the c.p. of Mound LXX, 1895. (Plates XCVIII, XCIX, C, CI, fig. 4.)

M 16. Part of skeleton of young child, in peat outside palisades, $21\frac{1}{2}$ ft. n. of the c.p. of Mound LXIX, 1895.

M 17. Part of child's skull, in peat outside palisades, 18ft. n. of the c.p. of Mound LXIX, 1895. This and M 16 probably belong to one individual.

M 18. Fractured atlas, in peat outside palisades, 32ft. n.e. of the c.p. of Mound LXVII, 1895.

M 19. Perfect skull and mandible, outside palisades $2\frac{1}{4}$ ft. below the surface of the peat, 32ft. e.n.e. of the c.p. of Mound LXVII, 1895. This and M 18 belong to one individual. (Plates XCVIII, XCIX, C, CI, fig. 2.)

M 20. Clavicle, gnawed by dogs, in peat outside palisades, 27ft. n. of the c.p. of Mound LIX, 1895.

M 23. Right temporal, in peat outside palisades, $47\frac{1}{4}$ ft. s. of the c.p. of Mound V, 1896.

M 24. Two parietals of child, in peat outside palisades, 24ft. w. of the c.p. of Mound X, 1896.

M 11. Fragments of bone representing nearly the whole skeleton, more or less burnt, in peat outside the palisades, 26ft. n.w. of the c.p. of Mound XLVIII, 1894. These are obviously the result of a cremation.

III. THE DISTRIBUTION IMPLIES A MASSACRE.

In the above list it will be noted that most of the finds consist of isolated bones, and that there are few cases where the body has been put away, so that the bones were left in their natural position. Most of the skeletons, as is usually the case in dwelling-places, belong to children, of whom seven were found in the spaces between the huts, two in the floors of huts, and only one outside the palisades. Only one adult skeleton with long-bones in apposition was met with (M 26)—in

the brushwood near the eastern margin of Mound IX. It was lying with the head to the north-west. It was very fragile, and the imperfect skull, and the two femora, tibiae and fibulae, were the only bones that were preserved. The skull is metopic (with the frontal suture open) and is of the same oval type as the rest. There is no proof of burial, and the body was probably flung among the brushwood into the peaty morass. It cannot therefore be taken to prove that the lake-villagers were in the habit of burying their dead, with the rare exception of the infants, usually found in prehistoric dwelling-places. There is on the other hand proof that cremation was practised, in the calcined fragments of a skeleton (M 11) representing nearly all the bones from the cranium to the feet. There can be no doubt that the villagers disposed of their dead either by cremation or inhumation, or perhaps by both, but their cemetery still awaits discovery. It has been diligently sought for in the Isle of Avalon,—the peninsula of Glastonbury,—hitherto without success.

The sporadic distribution of the human remains, as well as their general isolation from the rest of the skeleton, in my belief can only be accounted for on the hypothesis that there was a massacre of the inhabitants, and this conclusion is amply confirmed by the marks of violence on the skulls, to be described in the following section.

IV. THE DESCRIPTION OF THE CRANIA.

The only remains that are sufficiently perfect to be described are the crania, of which seven fragments have been found within the settlement, and nine close outside the palisades. Those figured (Plates XCVIII, XCIX, C, CI, figs. 1, 2, 3, 4) belong to the latter series.

The skull and mandible of M 6, (fig. 1 of the four plates), belong to an adult, probably male, and present the following characters:—

Norma facialis (Plate XCVIII, 1). Forehead low, brow-ridges strong, glabella strong, nasal depression deep (interorbital space 26mm.), nasals broad aquiline, orbits oval, oblique, chin well developed, square, face long (166mm.), malar breadth 127mm., symphysis of mandible 34mm.

Norma verticalis (Plate XCIX, 1). Contour oval, parietals unsymmetrical, nasals prominent, malars (cheek-bones) slightly showing.

Norma lateralis (Plate C, 1). Cranium with flowing contour broken by post-coronal depression on parietals, due to the pressure of a band tied under the chin, occipital protuberance andinion strongly marked; skull is orthognathous, with an alveolar index of 848.

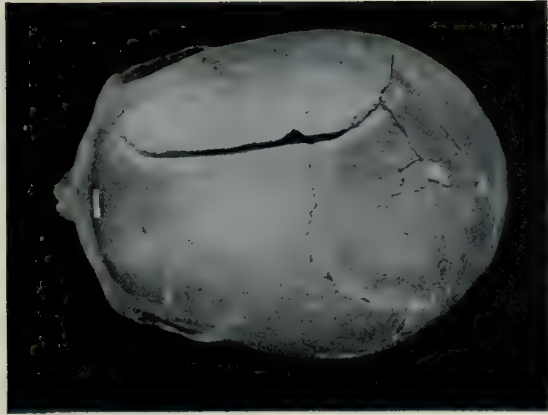
Norma occipitalis. Contour unsymmetrical, roughly pentagonal.

Norma basilaris (Plate CI, 1). Incisors and molars 1 and 2 worn flat, premolars and wisdom tooth M 3 unworn.

In the mandible there are no wisdom teeth. The owner of this skull was killed by sword-cuts, one through the right frontal and a second through the left parietal; a third through the right and left parietals, and ending in the left margin of the occipital, by vertical strokes;

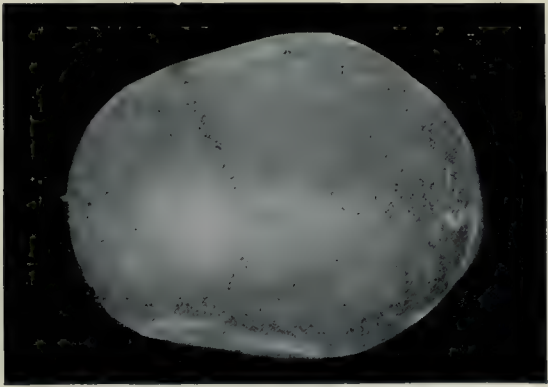
PLATE XCIX.

1



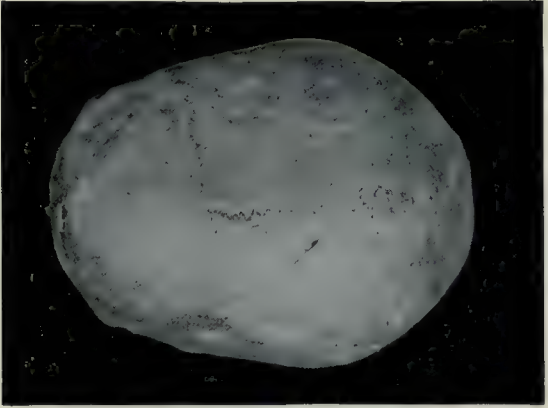
GLASTONBURY.

2



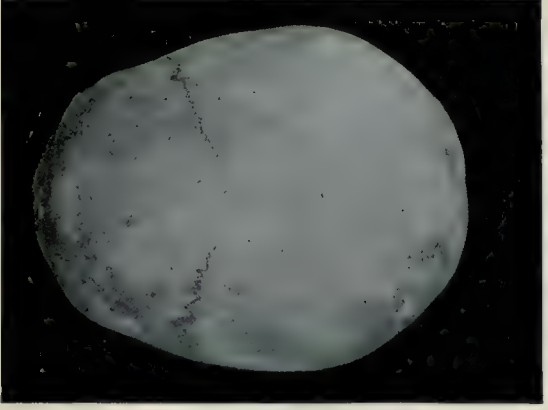
GLASTONBURY.

3



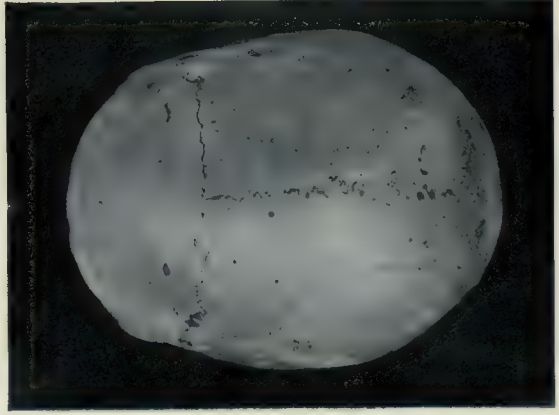
GLASTONBURY.

4



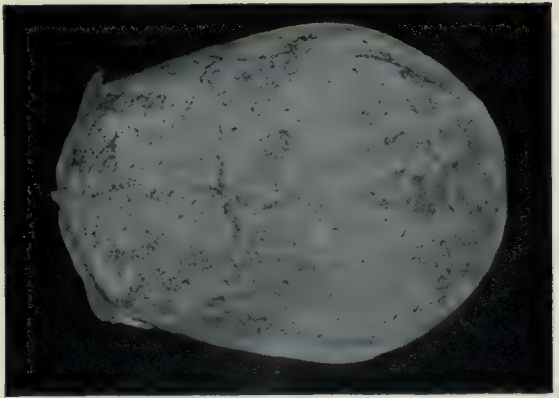
GLASTONBURY.

5



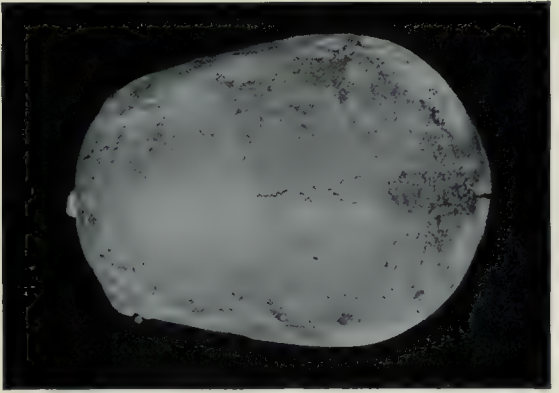
PERTHI CHWAREN.

6



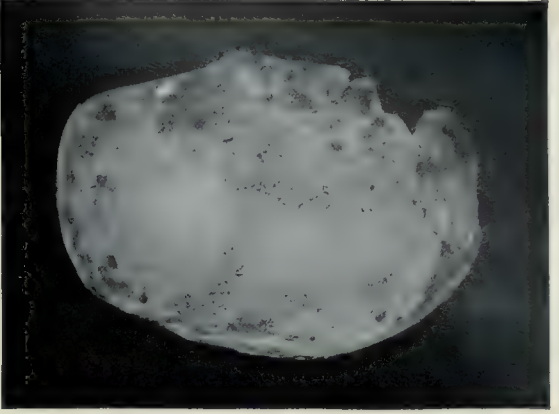
GOP.

7



ZAKRO.

8



ZAKRO.

NORMA VERTICALIS.

a fourth passes through the hinder portion of both parietals, and is the result of a sloping stroke; while a portion of the occipital protuberance on the right side has been shorn off by a glancing blow.

The skull and mandible of a young adult woman, M 19 (Plates XCVIII, XCIX, C, CI, 2).

Norma facialis (Plate XCVIII, 2). Vault arched, forehead moderate, glabella marked, brow-ridges inconspicuous, no nasal depression, orbits round-oval, oblique, nasals broad, nasal aperture narrow, interorbital width 21mm.; chin well developed, rounded; face long 160mm., malar breadth 120mm., symphysis of lower jaw 35mm.

Norma verticalis (Plate XCIX, 2). Contour oval, post-coronal depression, malars not visible.

Norma lateralis (Plate C, 2). Contour of cranial vault continuous sweep to occipital protuberance; this is small. Nasals nearly straight. The alveolar index of 893 implies that the skull is orthognathous.

Norma occipitalis. Contour rounded pentagon, inion small.

Norma basilaris (Plate CI, 2). Palate U-shaped, narrower than in fig. 1; teeth unworn.

A depression on the left frontal has been caused by an old wound resulting from the blow of a blunt weapon. In the occipital region a sword-cut passes from the left parietal across the occipital and the lambdoid suture to the right parietal (Plate C, fig. 2). It penetrated to the brain and evidently caused death. The head had been cut off, and the marks of the edges of a spearhead thrust through the foramen magnum, on the right and left sides above the condyles, imply that it had been carried on a spear.

The skull of a middle aged man, M 8, is represented in fig. 3 of the plates. It presents the following characters:—

Norma facialis (Plate XCVIII, 3). Vault rounded pentagonal, forehead fairly high, brow-ridges moderate, glabella well marked, nasal depression strong, nasals broad, orbits oblique, rounded quadrangular.

Norma verticalis (Plate XCIX, 3). Outline oval; two marks of glancing sword strokes, one penetrating the skull; malars showing.

Norma lateralis (Plate C, 3). Unbroken sweep from forehead to well developed occipital protuberance; nasals aquiline.

Norma occipitalis. Contour pentagonal, inion strong.

Norma basilaris (Plate CI, 3). The basi-occipital has been sheared off by a thrust in front of the condyles, and there is a clear cut from the right to the left articulations for the mandible. The basi-sphenoid and the petrosals are gone, and in their place is an oval aperture into the brain cavity, made by the blade of a spear thrust through the base of the cranium after decapitation. The left mastoid also has lost its tip by the blow of a sword. The head had obviously been cut off and carried on a spear, as in the case of the original of fig. 2 of the plates.

The last (M 15) of the four skulls selected for illustration (Plates XCVIII, XCIX, C, CI, 4) belongs to a young adult probably a woman with molars little worn, and wisdom teeth unworn.

Norma facialis (Plate XCVIII, 4). Forehead moderately high, vault rounded pentagonal, orbits rounded quadrangular, oblique, brow-ridges small, nasal depression moderate, nasals broad, nasal aperture 36 by 24mm., interorbital width 15mm.

Norma verticalis (Plate XCIX, 4). Oval, nasals and malars barely showing. A deposit of bone on the posterior region of the coronal suture marks the site of an old wound.

Norma lateralis (Plate C, 4). Curve from forehead to occipital protuberance broken by a slight post-coronal flattening of parietals, probably due to a band tied round the chin as in figs. 1 and 3.

Norma occipitalis. Vault rounded; occipital protuberance moderate and inion well marked,

Norma basilaris (Plate CI, 4). The left mastoid has its tip partially shorn away, and the left zygomatic arch has been swept away by a cut through the malar process of the temporal bone.

There is therefore evidence that the owner of this skull was cut down and probably decapitated like the rest. There are no spear-marks.

From the facts dealt with in the preceding pages it may be concluded that the Lake-village was stormed and that the inhabitants were massacred, some being decapitated and the heads carried on spears, before they were thrown into the morass outside the palisades. It can be no longer maintained, as was suggested before all the evidence was brought together, that the skulls are those of enemies, brought home by the villagers to adorn their triumph over foes who lived elsewhere. They are all of the same type as the scattered fragments of human skulls within the palisades. The Village had been sacked, and the inhabitants either killed or driven away, at some period shortly before the Roman conquest of Britain. It remained desolate down to the present day, contrasting in this respect with the cave of Wookey Hole in the neighbourhood, which was inhabited at the same time as the Lake-village, was occupied by the Romano-Britons, and has been used by man for shelter down to modern times.

V. MEASUREMENTS OF THE CRANIA AND THEIR COMPARISON WITH THOSE FOUND IN OTHER PREHISTORIC AND IN ROMANO-BRITISH SITES.

The crania present the detailed measurements shown in Tables I, II and III, from which it will be seen that they belong to a type widely spread, not only through the British Isles but over Europe and the Mediterranean region of Northern Africa and of Asia Minor. The points of measurement have been selected so as to cover the observations recorded by others, and with few exceptions and additions are identical with those of Dr. W. Wright, to whom I am indebted for aid in this most difficult question. We agree in attaching but little value to the variations of the individual as compared with those of the group, and in taking the relation of the measurements to each other to be of greater use in classification than the measurements themselves, as might be expected from the variation in modern human skulls, due to age, sex, and inheritance. The detail of these tables makes it unnecessary to burden these pages with anthropological descriptions.

MEASUREMENTS OF CRANIA FROM GLASTONBURY

	GLASTONBURY LAKE VILLAGE					WORLEBURY OPPIDUM.				WESTON-SUPER-MARE BURIAL.	HUNSBURY OPPIDUM.			
	Prehistoric Iron Age ; Iberic. Plates xcvi, xcix, c, ci.					Prehistoric Iron Age ; Iberic.					Prehistoric Iron Age ; Iberic.			
	Fig. 1.	Fig. 2.	Fig. 3.	Fig. 4.	Aver.	1.	2.	3.	Aver.		1.	2.	3.	Aver.
Glabello-occipital Length ...	184	183	183	185	183	183	182	182	182	183	195	192	185	191
Maximum Breadth ...	141	141	140	144	141	143	139	144	142	140	149	138	141	143
Basio-bregmatic Height ...	136	136	137	133	135	-	-	-	-	143	-	-	-	-
Basion to Nasion ...	112	102	112	114	110	102	-	-	-	112	-	-	-	-
Basion to Alveolar Point ...	95	92	93	96	94	-	-	-	-	94	-	-	-	-
Minimum Frontal Breadth ...	98	87	97	96	94	-	92	101	96	100	100	98	100	99
Stephanic Breadth ...	118	121	122	111	118	-	-	-	-	-	-	-	-	-
Maximum Parietal Breadth ...	142	140	144	137	141	-	-	144?	-	-	-	-	-	-
Asterionic Breadth ...	108	115	113	114	113	-	-	107	-	-	-	-	-	-
Bi-zygomatic Breadth ...	130	123	132	132	129	-	-	-	-	132	-	-	-	-
Bi-auricular Breadth ...	107	111	112	113	111	-	-	-	-	-	-	-	-	-
Auriculo-alveolar Radius ...	103	95	102	95	94	-	-	-	-	-	-	-	-	-
Auriculo-nasial Radius ...	94	91	100	92	94	-	-	-	-	-	93	-	-	-
Auriculo-frontal Radius ...	111	115	122	114	115	-	-	-	-	-	105	-	-	-
Auriculo-bregmatic Radius ...	121	118	120	120	120	-	-	-	-	-	127	-	-	-
Auriculo-parietal Radius ...	128	122	121	122	123	-	-	-	-	-	132	-	-	-
Auriculo-occipital Radius ...	116	104	104	109	108	-	-	-	-	-	-	-	-	-
Auriculo-alveolar Arch ...	295	270	270	295	282	-	-	-	-	-	-	-	-	-
Auriculo-frontal Arch ...	320	322	310	319	318	-	-	-	-	-	-	-	-	-
Auriculo-bregmatic Arch ...	303	277	310	290	-	-	-	-	-	-	-	-	-	-
Auriculo-lambdoid Arch ...	512	515	512	523	515	530	512	-	-	-	549	-	-	-
Horizontal Circumference ...	377	364	368	380	372	372	-	-	-	364	405	-	390	395
Opisthion-nasion curve ...	417	404	408	420	412	412	-	-	-	409	445	-	430	435
Basion-nasion curve ...	125	134	134	134	132	127	-	-	-	120	140	130	140	137
Frontal Arc ...	132	120	119	130	125	130	-	-	-	137	139	135	135	134
Parietal Arc ...	160	150	155	156	155	155	-	-	-	169?	-	151	155	161
Occipital Arc ...														

The References to the localities

I.

BURY AND OTHER PREHISTORIC SITES.

DANES' GRAVES, DRIFFIELD, YORKS.				WICK BARROW, SOMERSET.			CULBONE CIST, SOMERSET.	WIN- CANTON, SOMERSET.	AVERAGE.	PERTHI CHWAREU CAVES. Average of Seven.	TYDDYN BLEIDDYN, CEFN. Average of Three.	GOP CAVE. Plates xcviii, xcix. c, ci, Fig. 6.	GENISTA CAVE, GIBRAL- TAR.	ZAKRO CAVES, CRETE, Plates xcvi, xcix, c, ci, Figs. 7, 8.	
Prehistoric Iron Age; Iberic.				Bronze Age; Iberic.			Bronze Age; Goidelic.			Neolithic; Iberic.		Bronze Age; Iberic.	?	Bronze Age; Iberic.	
3.	7.	14.	18.	1.	2.	Aver.									
185	177	192	190	183	194	188	185	183	184	180	181	196	194	178	189
134	130	137	129	142	143	142	157	152	154	140	141	144	141	134	140
128	129	141	-	141	146	143	127	128	127	142	148	143	150	123	-
-	-	-	-	108	116	112	95	94	94	-	-	110	-	98	-
-	-	-	-	103	-	-	96	93	94	-	-	104	-	88	-
97	95	100	86	98	-	-	98	99	98	94	94	98	98	95	98?
110	118	-	92	125	-	-	126	122	124	-	-	125	-	-	-
-	-	-	-	140	-	-	-	-	-	-	-	144	-	-	-
116	105	115	-	-	-	-	-	-	-	-	-	111	-	-	-
-	120	133	119	139	-	-	144	134	139	-	-	122	132	-	-
115	116	124	107	131	131	-	137	127	132	-	-	-	-	-	-
97	93	104	106	-	-	-	-	-	-	-	-	109?	-	-	-
93	90	94	100	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
117	115	123	121	122	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	122	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
301	288?	304	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
521	490	532	507	528	547	537	-	531	-	508	521	542	529	504	-
-	-	-	-	357	-	-	-	-	-	425	424	395	-	-	-
-	-	-	-	397	-	-	-	-	-	465	464	432	-	366	-
-	-	-	-	127	-	-	-	-	-	125	128	130	-	126	130
-	-	-	-	130	-	-	-	-	-	133	134	140	-	114	120
-	-	-	-	140	-	-	-	-	-	127	121	165	-	126	-

are given in the text.

TABLE II.
FACIAL MEASUREMENTS OF SKULLS FROM GLASTONBURY AND OTHER PREHISTORIC SITES.

	GLASTONBURY LAKE VILLAGE.					WESTON-S.-MARE BURIAL.	DANES' GRAVES, DRIFFIELD, YORKS.					WICK BARROW.	CUL- BONE CIST.		WIN- CAN- TON.	GOP CAVE.	ZAKRO CAVES, CRETE.
	Prehistoric Iron Age; Iberic.						Prehistoric Iron Age; Iberic.						Bronze Age; Goideic.				
	Fig. 1.	Fig. 2.	Fig. 3.	Fig. 4.	Aver.		1.	3	7.	14.	18.		1.	2.			

Basion to Alveolar Point	95	92	93	96	94	—	86	89	104	—	103	—	96	94	104	89	—
Basion to Nasion ...	112	102	112	114	110	112	—	—	—	—	—	—	108	112	111	97	—
Auriculo-nasion Radius ...	103	95	102	95	99	—	—	—	—	—	—	—	—	—	—	—	—
Auriculo-mental Radius ...	128	116	—	—	—	—	112	113	128	118	—	—	—	—	—	—	—
Nasio-alveolar Height ...	77	70	66	71	71	—	63	66	64	71	66	—	67	68	80	59	62
Nasal Height ...	53	48	51	53	51	51	50	47	52	51	51	—	47	49	59	45	45
Nasal Breadth ...	26	21	24	25	24	21	20	24	25	22	26	—	23	22	25	24	22
Orbital Length ...	43	44	43	42	43	42	40	—	38	41	43	—	39	39	45	40	—
Orbital Height ...	37	34	33	32	34	31	35	—	34	33	30	—	32	32	34	31	—
Palato-maxillary Length	54	50	50	50	51	—	44	48	50	58	—	—	—	—	57?	47?	55
Palato-maxillary Breadth	56	60	57	54	56	—	38	40	41	42	—	—	—	—	39	36	38
Bi-maxillary Breadth ...	62	61	60	62	61	—	84	92	89	91	94	—	99	—	69	62	63
Bi-dacryal Breadth ...	24	18	20	20	20	—	—	—	21	16	—	—	—	—	27?	25	21
Bi-zygomatic Breadth ...	112	106	110	112	109	—	123	—	133?	119	—	—	—	—	—	—	—
Nasio-alveolar Length ...	77	67	67	71	70	—	63	60	68	71	—	—	—	—	78	62	60

MANDIBLE.																	
Symphysial Height	33	35	—	—	—	—	29	30	33	32	30	31	30	—	—	—	27
Coronoid Height ...	70	61	—	—	—	—	55	61	66	68	—	—	—	—	—	—	66
Condylod Height ...	61	50	—	—	—	—	54	52	59	57	—	—	—	—	—	—	51
Gonio-symphysial Length	—	—	—	—	—	—	80	79	77	93	—	—	—	—	—	—	90
Bi-condylod Width ...	120	112	—	—	—	—	106	114	107	117	—	—	—	—	—	—	114?
Bi-gonial Width ...	111	98	—	—	—	—	84	92	74	90	105	104	—	98	—	—	95

The References to the localities are given in the text.

TABLE III.

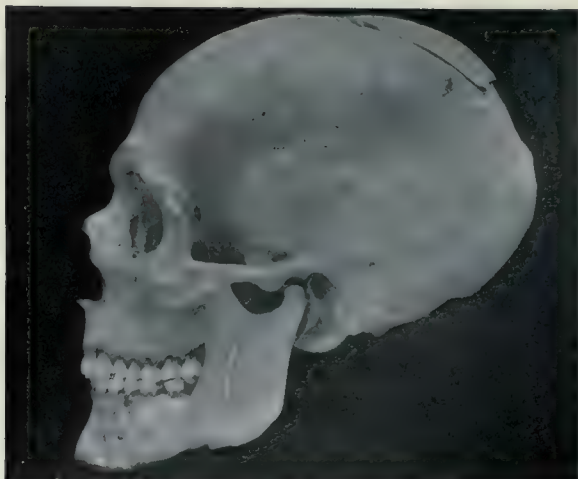
INDICES OF HUMAN SKULLS FROM GLASTONBURY
AND OTHER PREHISTORIC AND HISTORIC SITES.

	Glastonbury Lake Village.					Worlebury Oppidum.				Hunsbury Oppidum.				Danes' Graves, Driffield, Yorks.					Wick Barrow, Somerset.		
	Prehist. Iron Age.					Preh. Iron Age.				Preh. Iron Age.				Preh. Iron Age.					Bronze Age.		
	Fig. 1.	Fig. 2.	Fig. 3.	Fig. 4.	Aver.	1.	2.	3.	Aver.	1.	2.	3.	Aver.	1.	3.	7.	14.	18.	1.	2.	Aver.
Cephalic Index (Breadth)	766	770	765	778	769	781	763	791	778	728	716	762	734	787	724	734	713	679	776	737	751
Height Index	733	743	748	719	735	-	-	-	-	-	-	-	-	793	692	728	728	734	766	753	759
Alveolar do.	848	893	830	842	853	-	-	-	-	-	-	-	-	-	-	-	-	-	954	-	-
Nasal do.	490	457	470	471	472	-	-	-	-	-	-	-	-	400	520	540	480	430	510	-	-
Orbital do.	860	772	767	860	844	-	-	-	-	-	-	-	-	870	-	890	810	810	698	-	-
Facial do.	687	632	609	634	640	-	-	-	-	-	-	-	-	512	-	550	511	596	-	-	-

	Cul- bone Cist.	Win- can- ton.	Cefn Cairn.	Perthi Chwareu Caves.	Gop Cave.	Genista Cave, Gibraltar.		Zakro Caves, Crete.		Wood- cuts.	Rother- ley.	Wood- yates.
	Bronze Age.		Neolithic Age.		Bronze.	?		Bronze.		Romano-British Age.		
				Aver. of 7.						Aver. of 14.	Aver. of 15.	Aver. of 20.
Cephalic Index (Breadth)	840	830	773	777	734	748	759	752	740	756	737	764
Height Index	686	699	817	788	729	775	813	691	-	712	722	770
Alveolar do.	987	989	-	-	937	-	-	900	981	953	958	963
Nasal do.	489	437	-	-	423	-	-	480	-	466	462	-
Orbital do.	820	800	-	-	755	-	-	-	-	880	882	874
Facial do.	-	-	-	-	-	-	-	-	-	-	-	-

The References to the localities are given in the text.

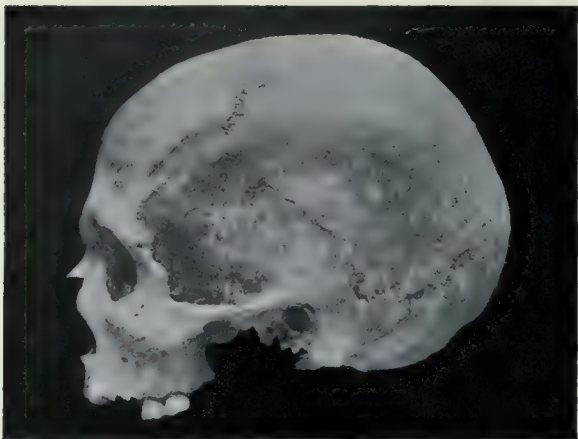
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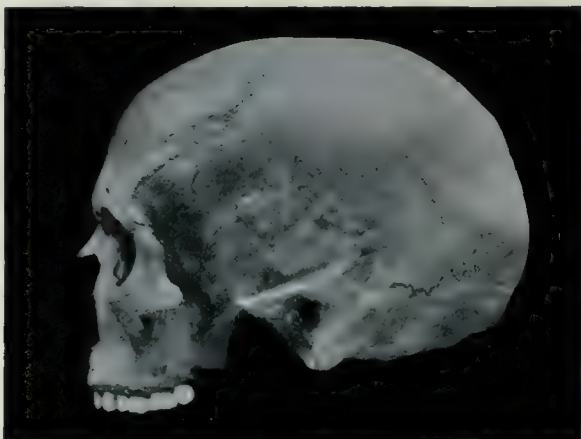
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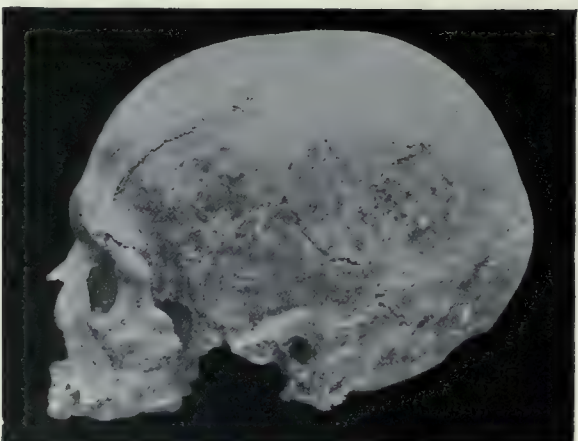
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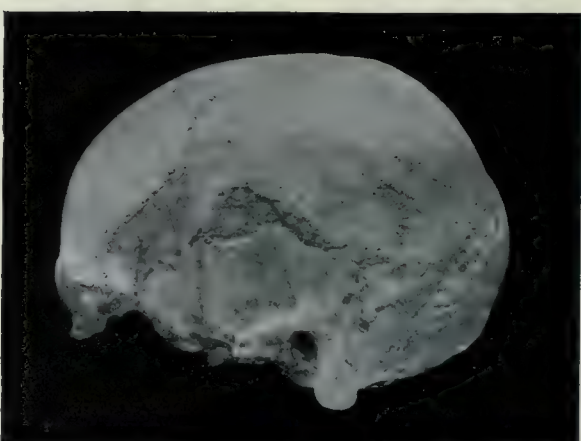
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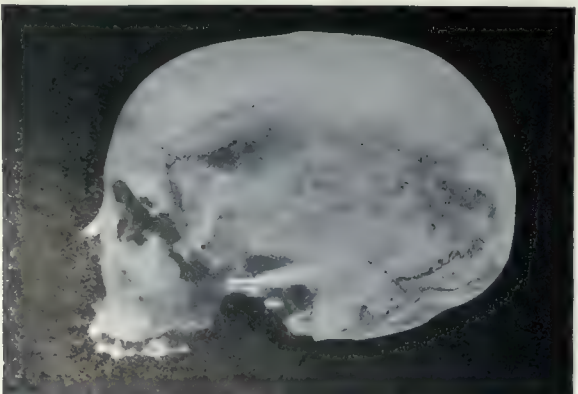
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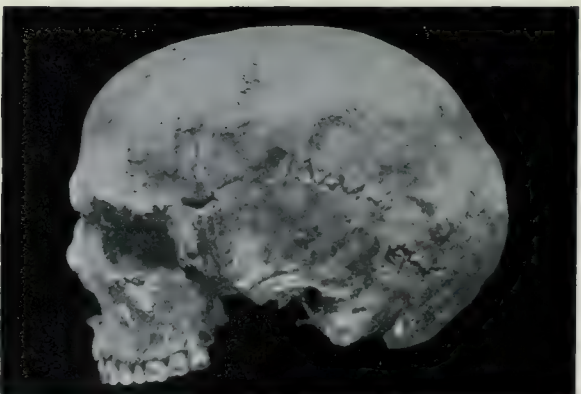
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7



8



1, 2, 3, 4, Glastonbury. 5, Perthi Chwareu. 6, Gop. 7, 8. Zakro.

CHAPTER XXVIII.

THE RANGE OF THE IBERIC RACE IN BRITAIN IN THE PREHISTORIC IRON AGE.

By W. BOYD DAWKINS, M.A., D.SC., F.R.S.

- I. THE VILLAGERS OF IBERIC OR MEDITERRANEAN RACE.
- II. RANGE OF IBERIC RACE OVER SOUTHERN AND MIDDLE BRITAIN IN THE PREHISTORIC IRON AGE.
 - A. WORLEBURY OPPIDUM, WESTON-SUPER-MARE. B. HOD OPPIDUM, NEAR BLANDFORD.
 - C. CASTERLEY HILL FORT, UPAVON, WILTS. D. OPPIDUM OF HUNSBURY, NORTHAMPTON.
 - E. BURIALS IN EASTERN YORKSHIRE OF THE PREHISTORIC IRON AGE.
- III. THE PREDOMINANCE OF THE IBERIC RACE IN LARGE AREAS IN BRITAIN IN THE PREHISTORIC IRON AGE.

I. THE VILLAGERS OF IBERIC OR MEDITERRANEAN RACE.

WE have now to consider the questions, "Who were the Villagers?" and "What is their place in the Ethnology of Britain?" The answers are found in the characters and measurements of their skulls, and by their comparison with those found in other habitations and tombs.

From the details of the skulls it is clear that we are dealing with one unmixed group of families in the Lake-village, and this conclusion is confirmed by the detailed measurements appended to the preceding chapter. For our immediate purpose it is only necessary to use the indices of Table III (Chap. XXVII) which are based upon them.

All the measurements of the skulls indicate that the villagers are singularly free from variation, and that they all belong to the oval-headed (mesaticephalic) section of the inhabitants of Britain,¹ without any trace of mixture with the Broad-headed type of the Somerset graves, such as those at Culbone and Wincanton,

1. For definition of the terms, see Flower, "Osteological Catalogue of Royal College of Surgeons," I, 251:—

Dolichocephali (Long), with cephalic index below 750.

Mesaticephali (Oval), with cephalic index from 750 to 800.

Brachycephali (Broad) with cephalic index above 800.

and of Britain generally in the Age of Bronze. These Oval-heads shade off into Long-heads or Dolichocephali, but are marked off from the Broad-headed race by a different form of cranium, by their shorter stature, and slighter build. They are physically identical, as has been pointed out elsewhere,¹ with the small dark inhabitants of the Basque provinces of France and Spain, who speak a non-Aryan tongue and represent a section, to say the least, of the people whose name survives in the Iberian Peninsula, and in Ireland (Hibernia, the island of the Iberians), and whose power extended, at the dawn of history, over Gaul as far as the Loire. In the present population they may be recognized in the small dark English, Welsh, Scotch, French, and Spaniards. The same race occurs in Italy, in Greece, the Greek islands and in Asia Minor, and in Northern Africa, being represented in the west by the Berbers, and in the east, as Prof. Elliot Smith has shown, by the primitive Egyptians and their descendants among the fellaheen. For the whole group Sergi² in 1895 proposed the name of Mediterranean race; and in this connection it may be noted that all the crania from the Lake-village belong to the type "ovoides" in his classification.

The place of the Lake-villagers in the population of Roman Britain will be dealt with in Chapter XXIX, after we have ascertained their place in the population of Britain in prehistoric times.

II. RANGE OF IBERIC RACE OVER SOUTHERN AND MIDDLE BRITAIN IN THE PREHISTORIC IRON AGE.

We must now consider the relation of the Lake-villagers to their contemporaries in Southern and Middle Britain.

A. WORLEBURY OPPIDUM.

The evidence is clear, as I have pointed out in my address to the Somersetshire Archæological and Natural History Society in 1912,³ that the Lake-village of Glastonbury and the adjacent Isle of Avalon were linked with the hill-forts of Somerset, Wilts and Dorset, by a system of roads more or less represented now by the ridgeways. It was also in touch with the Bristol Channel by a waterway through the marshes, and it stood practically at the head of the inland navigation of the river Brue. There is therefore no ground for surprise that the hill-fort

1. Boyd Dawkins, "Early Man in Britain" (1880), 309-335 (the evidence is discussed in detail in chap. ix); and "Cave Hunting" (1874), chap. vi.

2. Sergi, "Origine e Diffusione della stirpe Mediterranea," Roma, 1895.—"The Mediterranean Race," London, 1901; this is a more detailed account, brought down to the knowledge of the day.

3. *Proc. Som. Arch. Soc.*, LVIII, i, 13-25.

of Worlebury, explored by Warre and others,¹ should contain objects that imply that the dwellers in the district of Weston-super-Mare were in the same stage of culture as the Lake-villagers. They practised the same arts—spinning, weaving, pottery-making; grew the same wheat, barley, and beans; had the same domestic animals, and lived in the same sort of huts, with this difference that at Worlebury the huts were sunk into the ground, instead of being supported on artificial foundations in the morass, and that they were protected from attack by massive and complicated stone walls, overlooking the Bristol Channel and the Welsh hills, instead of the palisades surrounding the Glastonbury Lake-village. The pit-dwellings, irregularly distributed within the walls over an area of $10\frac{1}{2}$ acres, are ninety-three in number, or three more than the huts at Glastonbury. Here, too, there is the same evidence as to date in the absence of any traces of Roman civilization within the huts, although both Roman coins and pottery are abundant within the fort. The coins, ranging in date from A.D. 18 to 361, imply that the site was occupied during the greater portion of the period during which Britain was a Roman province. The site was obviously too good to be neglected, although the huts had been abandoned, as at Glastonbury, before the Roman conquest. For these reasons they and the fort that protected them are clearly of pre-Roman age, and belong to the same period as the Lake-village. One of the designs on the pottery is common to both, and may have been the work of the same artist. In both, too, the period of the occupation of the huts was ended by a massacre. Portions of about eighteen skeletons have been found at Worlebury beneath the charred débris of the huts, half of them bearing marks of cutting weapons. One head had been cut off by a stroke clean through the atlas vertebra, and a skull now in the Taunton Museum bears seven sword-cuts. The human remains are preserved in the Museum of the Somersetshire Archaeological and Natural History Society at Taunton and in the Public Museum at Weston-super-Mare. They have been figured and described by Prof. Alexander Macalister, and have recently been re-examined for the purposes of this work. When compared with those from the Lake-village they present but few and trifling differences. In both the crania are long-oval (mesaticephalic), the only noteworthy point being that they are slightly broader, having a cephalic index of 778, as compared with 769, as may be seen in the table of indices (Table III, Chap. XXVII). We may therefore conclude that they belong to the same race.

"The skulls," writes Prof. Macalister,² "resemble in all particulars the race whom it is the fashion now to call 'Iberians';—the dark race which still survives, here and there, in our own Western Islands, and in the west and north-west of Ireland; and which has been mixed

1. Dymond, "Worlebury an Ancient Stronghold in the County of Somerset," Bristol, 1902 (1st edit., 1886).

2. "Worlebury," 101.

in many places with the Aryan Gwyddel: and I have no hesitation in referring them to that race. That any direct conclusion as to date follows from the identification is a separate question: for these 'dark Celts' (as they are sometimes improperly called) certainly fought against the Romans, side by side with their brachy-cephalous contemporaries: and among the heterogeneous jumble of skulls, to which, for want of a better, the name 'Romano-British' has been applied, some certainly show characteristics identical with these."

The stature of the inhabitants of the oppidum he estimates from the measurements of the long-bones to be from 5.3 to 5.8ft.

To the same type belong the skeletons found in 1902 in making Coronation Road, Weston-super-Mare, and recorded by Mr. H. N. Davies.¹ They occurred in pits sunk 3ft. 6ins. into the broken limestone, covered with slabs of lias, and buried under soil and rubble to a depth of 2ft. 6ins. In pit No. 1 two skeletons in a crouching posture faced one another, and on the floor made of thin liassic slabs were slingstones carefully selected from a beach, coarse pottery and broken remains of *Bos longifrons*, horse, sheep or goat, hog, and a part of the skull and lower jaw of a small dog. In a second pit there were fragments of the cranium of a young child with broken bones, of domestic animals, and coarse pottery, but without the slingstones. The third was nearly filled with broken bones of the same animals, and among them the lower jaw of a larger dog. The skeletons are male and female, and, as may be seen from the measurements of the male skull in Table I (Chap. XXVII) belong to the same type as those in Worlebury close by. The cephalic index is 765, and the height index 781. The remains are certainly prehistoric, and they may have belonged to dwellers in the fort. In the latter case there is clear proof that inhumation, as well as cremation was practised in Somerset during the period under consideration. It is, however, perhaps wiser to carry these observations to a suspense account. In other districts such as Yorkshire and Derbyshire, and perhaps Dorset, inhumation was practised in the Prehistoric Iron Age, while cremation prevailed in Cambridgeshire, Herts and Essex in the later phase of the period just before the Roman conquest.

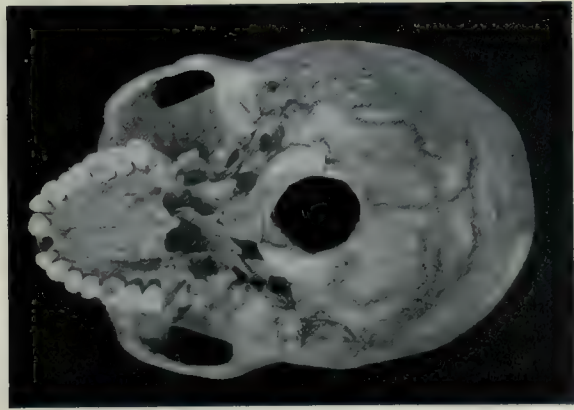
B. HOD HILL OPPIDUM, NEAR BLANDFORD.

The same Iberic race is represented by remains in oppida of the same archaeological date in the adjoining county of Dorset. In that of Hod, near Blandford,² the cranium of a contracted skeleton, that had been placed in the lower portion of one of the pit-dwellings, presents the same characters as the above. It was covered by a continuous bed of earth mixed with ashes, broken bones and pottery, showing that the hut had been occupied afterwards in the Prehistoric Iron Age,

1. *Proc. Som. Arch. Soc.*, LI, i, 50-51.

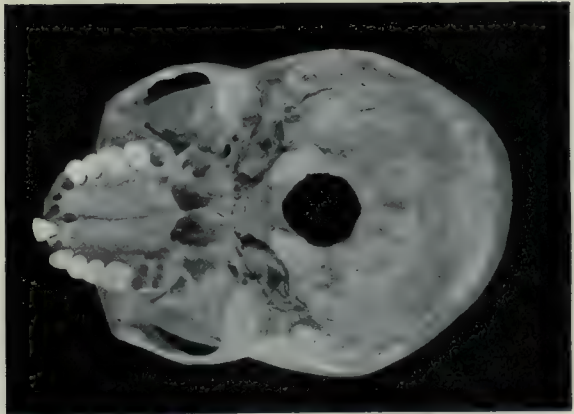
2. Warne, "Ancient Dorset," 1872; Boyd Dawkins, "The Exploration of Hod Hill, near Blandford," *Arch. Journ.*, LVII, 52-68.

1



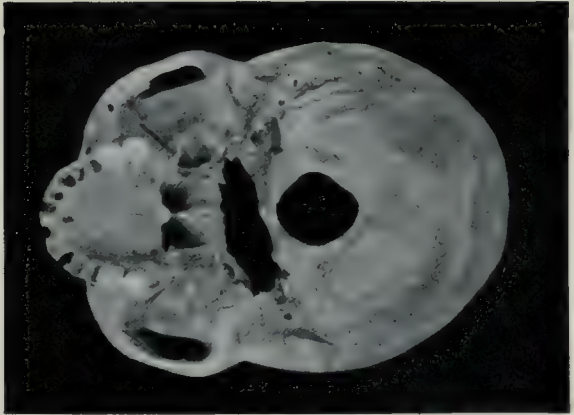
GLASTONBURY.

2



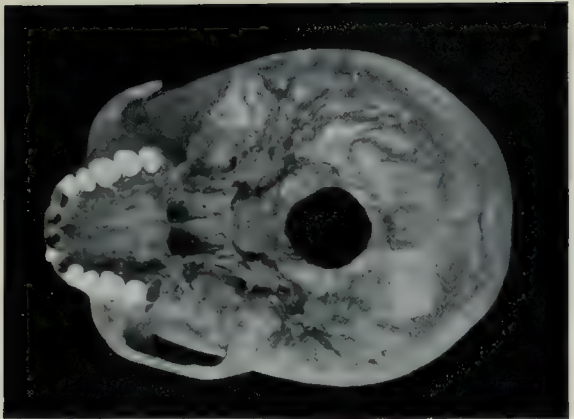
GLASTONBURY.

3



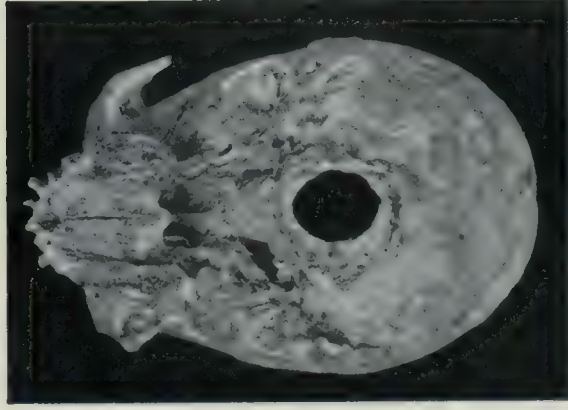
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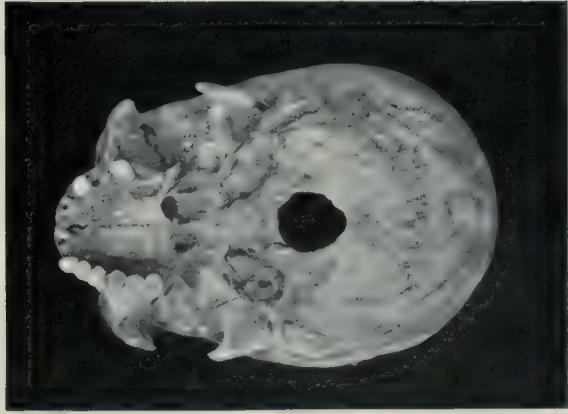
GLASTONBURY.

6



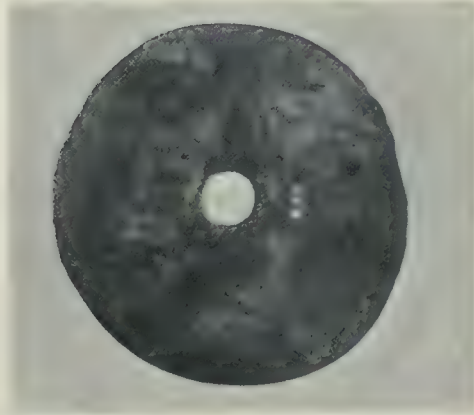
GOP.

7

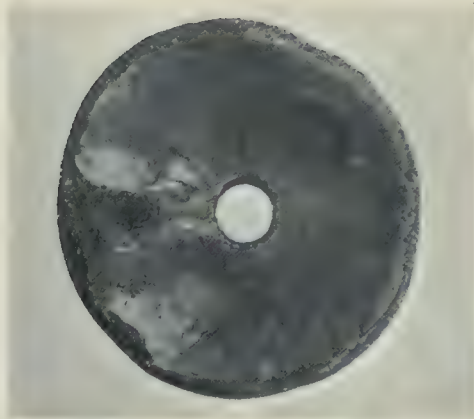


ZAKRO.

9



10



AMULET MADE OF OCCIPITAL PROTUBERANCE, GLASTONBURY.

Figs. 1—4, 6, 7, NORMA BASILARIS.

while the upper stratum immediately below the turf, as is usual in the other pits, was of clearly defined Roman date, and belonged to the period of the Roman conquest. Human remains also were met with in several of the other pits. The Roman garrison occupied the north-west corner of the large, irregular and elaborately fortified oppidum, which they cut off from the rest by the usual rectilinear ramps, fosses, and a *tête du pont*. It was occupied, as proved by the coins, from the Claudian conquest to about the middle of the second century A.D., when the Roman peace ruled in the land and a garrison was unnecessary. Then the Roman castrum was abandoned and the inhabitants lived permanently in the valleys, such as Iwerne (? *Ibernio*), where the coins carry on the record to the fourth century A.D. At Hod, as in Worlebury, there are no human remains of any other race.

C. CASTERLEY HILL FORT, UPAVON, WILTS.

The same long oval-headed type of men has been met with in Wiltshire, in the exploration by Mr. and Mrs. B. H. Cunnington¹ of Casterley Camp on Salisbury Plain near Upavon, the most northern of the line of the forts commanding the valley of the Avon as far south as Salisbury, where the southern approach is guarded by the strong fortress of Old Sarum. It belongs to the Prehistoric Iron Age, and like Worlebury was occupied after the Roman conquest down to the middle of the fourth century A.D., according to the testimony of the coins. The only two skulls, in the Museum at Devizes, sufficiently perfect to allow of accurate measurement give the following details :—²

	No. 31.	No. 32.
Glabello-occipital length	184	182
Maximum breadth	144	145
Cephalic index	782	790

If these measurements be compared with those of the Lake-village (Tables I and III, Chap. XXVII), it will be seen that they are slightly broader than the latter. This variation is taken by Dr. Beddoe to be the natural result of the mixture of a long-oval-headed with a broad-headed race, which was in Wiltshire in the preceding Age of Bronze. The four skeletons, found in various attitudes close to the sides of one of the pits, did not "give the impression" to Mr. and Mrs. Cunnington that they had been placed there for burial. Nor was it proved that the pit was at the time within the area of the fort. It may have been earlier. Its archæological date is, however, fixed by the iron fibula of the same type as those found in the lower strata of the pits, in the oppidum of Hod.

1. *Wilts Arch. and Nat. Hist. Mag.*, XXXVIII, 53-105.

2. *Op. cit.*, 94-97.

D. THE OPPIDUM OF HUNSBURY, NORTHAMPTON.

We must now consider the evidence as to the presence of this Iberic race in the Midland Counties. The working of the ironstone, in 1882 and the following years, revealed the existence of 300 bases of huts in the four acres surrounded by the great rampart and fosse known as "Danes Camp" on Hunsbury Hill, overlooking the valley of the Nen and the town of Northampton.¹ It also revealed a second rampart and fosse that had been completely obliterated by cultivation. The bases of the huts like those at Hod were round, about 6ft. in diameter and in depth, and full of the same class of débris.

The objects found were collected by Sir Henry Dryden and presented to the Northampton Museum. They convey a vivid picture of the life in the district in the Prehistoric Iron Age. The same industries were carried on here as at Glastonbury. The iron cutting-tools, saws, axes, adzes and hammers are the same, and imply carpentry, although none of the results of their use have been preserved, as they cannot be under normal conditions. There were also blacksmiths, iron- and bronze-smiths, and potters who used similar flamboyant and rectilinear designs on their work. The weavers used the same weights for their looms, and the same combs. The same ploughs were used in the fields, the same wheat was grown and ground either in querns of the beehive pattern or on flat slabs of sandstone, as in the Lake-village. The harness, including snaffle-bits for the horses, is the same; and the tires of wheels imply the presence of the wheelwright, although the wooden axles, the spokes and the rest, so well preserved at Glastonbury, have disappeared. The domestic animals—sheep, goats, *Bos longifrons*, pigs, horses and dogs—are common to both. The associated weapons are, however, more artistic than at Glastonbury, and more especially the hilts and sheaths of the daggers and swords, which are ornamented with flamboyant designs of Late-Celtic type. From all these things it is clear that there was but little difference between the life in the Lake-village and in the oppidum of Hunsbury.

Three human skulls discovered in the course of the excavations have been described by Dr. Garson. They belong to the ovoid class of Sergi; two are long with cephalic index of 713 and 737, while the third is oval with an index of 762. All three belong to the same race as the Lake-villagers, the only difference between them being that they are slightly narrower than the latter. One of these skulls bears three holes on the vertex at the three angles of an equilateral triangle. They apparently have been drilled after death. It is the only skull referable to the Prehistoric Iron Age in Britain that presents any traces of surgical

1. Dryden, *Reports, Assoc. Archit. Soc.*, XVIII, 53-61; Pitt-Rivers and Garson, "Excavations in Cranborne Chase," III, 286-7; George, *Vict. Co. Hist., Northampton*, I, 147.

operations. The holes may have been drilled from some superstitious motive, such as that which caused the Lake-dwellers at Glastonbury to make a perforated disc out of a human occiput (Plate CI, figs. 9, 10).

E. BURIALS IN EASTERN YORKSHIRE IN THE PREHISTORIC IRON AGE.

The dwellers in middle and southern England in the Prehistoric Iron Age for the most part practised cremation, and have left but scanty traces of their physique in their burial-places. In Yorkshire, however, they buried their dead in shallow pits, covered by a low mound, in which large numbers of skeletons have been found, mostly in the contracted position, one or at most two in each mound. They were buried with fibulae and necklaces, and various bronze articles of the same general class as those of the Lake-village. In some the warrior rested in his chariot, accompanied by his horse and dog ready for the last long journey to the world of spirits. The wheels in one burial at Arras were practically of the same size as those at Glastonbury, the iron tires being 35ins. in the former, while the nave and spokes in the latter measured 31½ins., to which must be added the wooden felly and the iron tire. Here, too, the presence of coral in some of the brooches shows contact with the south, just as is shown by the mirrors and the dice of the Lake-village.

The two most remarkable cemeteries are those at Arras¹ and Danes' Graves,² both near Market Weighton. In the latter the 500 barrows on record are now only represented by 157 on the 6-inch ordnance map. From these cemeteries numerous human skeletons have been described by Drs. Thurnam and Davis, and by Dr. Wright,³ to whom we owe a masterly outline of the physical characters of the people then living in the East Riding of Yorkshire.

If the measurements in his tables be compared with those of the Lake-village there is found to be but little difference between the two groups. Out of fifty-seven skulls, no less than thirty present a cephalic index ranging from 720 to 770, while the lowest is 655, and the highest 800. I have selected for use in my Tables (Chap. XXVII) a group of five which may be taken as average samples. Two skulls from Arras, with cephalic indices of 730 and 776, are of the same oval type. The average stature of the males in the Danes' Graves Cemetery, according to Dr. Wright, is 5ft. 7½ins. (172c.), of the females 5ft. 5ins. (165c.). All the skulls belong to one or other of Sergi's Mediterranean types, and are closely related to the long- and oval-headed inhabitants of Britain in the Neolithic and Bronze Ages.

1. Thurnam and Davis, "Crania Britannica," II, pt. xii; Greenwell, "Early Iron Age Burials in Yorkshire," *Archæologia*, LX, 251-312.

2. Mortimer, "Forty Years' Researches in Burial Mounds of East Yorkshire," 359.

3. Wright, *Journ. Anthropol. Inst.*, XXXIII, 66-73; *Archæologia*, LX, 313-324.

Two hypotheses, according to Dr. Wright, are possible as to the origin of these people: "Either they were direct descendants of the British Neolithic race, who lived comparatively unmixed through the Bronze Age, or they were settlers from the Continent belonging to a race which was more or less identical with the British Neolithic dolichocephals."¹ He inclines to the latter view. They undoubtedly belong racially to the same stock as the Lake-dwellers of Glastonbury. It is possible that they had been incorporated into the Parisii,—a Brythonic tribe that has left its name in Paris on the Continent—before a section of that tribe established itself in Yorkshire, or on the other hand they may have dwelt in the East Riding before the invasion took place.

III. THE PREDOMINANCE OF THE IBERIC RACE IN LARGE AREAS IN BRITAIN IN THE PREHISTORIC IRON AGE.

It is a remarkable fact that the inhabitants in the Prehistoric Iron Age should present such an uniform physique throughout southern and middle England and as far north as Yorkshire. It is all the more striking because there is evidence, over the whole of this area, that there had been great invasions of Broad-headed Goidels and of Brythons, whose diversity of physique renders a definition impossible, but whose language has left its mark in topography from John o' Groat's to the English Channel. It is not unlikely that both Goidel and Brython invaders had been more or less absorbed into the general mass of long-oval-headed peoples in Britain and on the Continent, in the Prehistoric Iron Age, in the same way as the Goth and the Frank have been lost in the population of France, or the successive invaders of Italy and of Spain in the Mediterranean or Iberic race. The Goidels had obtained the mastery over the tribes in Britain in the Bronze Age, and the Brythons had conquered the Ibero-Goidelic people at the beginning of the Prehistoric Iron Age, the political and linguistic changes being very great, while there were no corresponding changes in ethnology. The Iberic substratum was still ethnically dominant in Somerset, Dorset, and Wilts, in Northamptonshire, and the East Riding of Yorkshire, and, as we shall see in the next chapter, in South Wales till the English Conquest.

1. *Journ. Anthropol. Inst.*, XXXIII, 71.

CHAPTER XXIX.

THE PLACE OF THE IBERIC RACE IN BRITISH ETHNOLOGY.

By W. BOYD DAWKINS, M.A., D.SC., F.R.S.

- I. THE IBERIC RACE IN SOMERSET IN THE BRONZE AGE. II. THE IBERIC RACE IN BRITAIN IN THE NEOLITHIC AGE. III. THE IBERIC AND GOIDELIC RACES ON THE CONTINENT IN THE NEOLITHIC AND BRONZE AGES. IV. THE INCOMING OF THE GOIDELS INTO BRITAIN IN THE BRONZE AGE. V. THE INCOMING OF THE BRYTHONS INTO BRITAIN IN THE PREHISTORIC IRON AGE. VI. DISTRIBUTION OF RACES IN GAUL AND SPAIN AT THE TIME OF THE ROMAN CONQUEST. VII. RELATION OF LAKE VILLAGERS TO THE BELGAE. VIII. RELATION OF LAKE VILLAGERS TO THE SILURES. IX. THE LANGUAGE OF THE LAKE VILLAGERS. X. THE COMMERCIAL RELATIONS OF THE LAKE VILLAGERS. XI. THE IBERIC POPULATION IN BRITAIN UNDER THE ROMANS. XII. CONCLUSION.

WE must now deal with the questions of the place of the Iberic race, in the population of Britain, in the Neolithic and Bronze Ages, and of the incoming of other races from the Continent.

I. THE IBERIC RACE IN SOMERSET IN THE BRONZE AGE.

The Iberic people are proved to have occupied Britain in the Bronze Age, by the discovery of their remains in sepulchral caves and burial-mounds, in various districts, such as North Wales, Derbyshire, and Somerset: In the last county the valuable record, by Mr. H. St. George Gray,¹ of the discoveries in Wick Barrow, near Stogursey, leave no room for doubt. These crania present the usual ovoid type of Sergi. They belong to three skeletons that had been buried in the contracted posture, and were associated with beakers, or drinking-cups, of the Early Bronze Age,² and with flint knives and scrapers usually found in burials

1. *Proc. Som. Arch. Soc.*, LIV (1908), ii, 1-78.

2. Abercromby. "A Study of the Bronze Age Pottery of Great Britain and Ireland," I, Plate v, 7, 8, and Plate vi, 20.

of this period. There were also large quantities of human bones mingled together as in an ossuary. From the principal measurements in Tables I, II and III (Chap. XXVII) it may be concluded that the differences between them, and the rest of the long-oval crania now under discussion, are minute and unimportant. They are slightly longer than the Lake-village skulls, having an average cephalic index of 751, as compared with 769 in the latter.

The Iberic people were living side by side with neighbours of another race, in the west on the border of Devon at Culbone, and in the south-east in the district of Wincanton. Before, however, entering on this question, we must deal with their range over Britain and the Continent in the Neolithic and Bronze Ages.

II. THE IBERIC RACE IN BRITAIN IN THE NEOLITHIC AGE.

The same long- and oval-headed people have been identified during the explorations of the last fifty years, in the tombs and dwelling-places of the Neolithic Age throughout Britain and Ireland, everywhere presenting the same characters.¹ They tended to be of low stature, ranging, in the sepulchral caves of Perthi Chwareu and in the chambered tomb of Cefn, from a maximum of 5ft. 6ins. to a minimum of 4ft. 10ins.

The crania from these burial-places differ from those of the Lake-village only in the fact that they are coarser, with muscular impressions more strongly marked, as might be expected from their possessors being in a lower grade of culture. All the measurements agree as may be seen from the tables, the variations only being those usually found in all groups of skulls of the same stock (Tables I, II, III, Chap. XXVII), and due to age, sex, and environment,—such for example as the depression on the parietals behind the coronal suture caused by the pressure of a band tied over the crown of the head. The possessors of this type of skull were the only inhabitants of Britain in the Neolithic Age.²

III. THE IBERIC AND GOIDELIC RACES ON THE CONTINENT IN THE NEOLITHIC AND BRONZE AGES.

The tribes presenting these characters are met with on the Continent on Neolithic sites from the Atlantic to the Mediterranean. They occur in the caves

1. The details as to this will be found in Boyd Dawkins, "Cave Hunting," chap. vi, and "Early Man," chap. ix.

2. This is disputed by Rice Holmes, "Ancient Britain and the Invasion of Julius Caesar," pp. 108-10, and 408-9, on evidence which I am unable to accept, because all the cases which he quotes are referable to the Early Bronze Age. The absence of bronze does not imply Neolithic culture, and the statement that the Broad-heads who introduced beakers "brought no bronze with them" is refuted by the many cases of the two being found together, given by Abercromby in "A Study of the Bronze Age Pottery of Great Britain and Ireland."

of Belgium, France, Italy and Spain, including Gibraltar, in the Lake-dwellings of Switzerland, and the burial-mounds dated by Neolithic axes almost everywhere.¹ We may take the measurements of the skulls from the Genista Cave,² Gibraltar, as typical. (Tables I, III, Chap. XXVII). They fall well within the limits of variation in the group under discussion, and present, as is pointed out by Prof. Busk, "the closest possible resemblance to the type of Basque skulls, which have been so well and minutely described by M. Broca." The race to which they belong is beyond a doubt represented by the modern Basques, *i.e.* the small dark Basque-speaking people of Southern France and Northern Spain. Nor can there be any doubt that they are a section of the Iberians of history, who have left their name in European geography in the Iberian Peninsula, and, according to Rhys, also in the etymology of Ireland.

It is also represented in tombs of the Bronze Age belonging to pre-Greek peoples in Greece, Asia Minor, and the Greek islands, and is described by Sergi as the Mediterranean race. As an example (Tables I, II, III, Chap. XXVII) I have selected the measurements of two crania found in a cave at Zakro in Crete.³ They fall within the limits of the long-oval type, and, as might be expected from the high Minoan civilisation then existing in Crete, are more delicate and have weaker impressions of muscles than in the crania of people who lived under less cultured and more or less harder conditions.

In my opinion this long-oval-headed race was the first to find its way into Europe, probably from Asia, and, after taking possession of the land in the Neolithic Age, was in its turn invaded by the Broad-heads of the Alpine race, as defined by Ripley, who were in the same stage of Neolithic culture. The latter occur on Neolithic sites, and often side by side with the long-oval-headed people in Spain, Italy and France.⁴ In the last region the fusion of the two races is proved by the presence of both types of crania in the sepulchral cave of Orrouy (Oise), and of intermediate forms resulting from intermarriage. Out of twenty-one crania eight are intermediate, and the two extremes are represented by long, oval, and broad types. Similar proof is offered by other burials in France. Dr. Thurnam, summing up the whole evidence as to the distribution of the two races in the prehistoric tombs of France, concludes that the two races came into contact there at an earlier period than in Britain. In other words, the Broad-heads had established themselves on the Continent, and were dominant in the

1. The detailed proof of this is given in Boyd Dawkins, "Early Man in Britain" (1880), chap. ix, and "Cave Hunting," chap. vi.

2. Busk, "Genista Cave," *Int. Congress Preh. Archæol.*, 1868, Norwich, 161-3.

3. Boyd Dawkins, "Skulls from Zakro," *Annual Report of British School at Athens*, 1900-1.

4. Boyd Dawkins, "Cave Hunting," 197, 203; Broca, *Bull. Soc. Anthropol.*, IV; Thurnam, *Mem. Anthropol. Inst.*, I,

Neolithic Age in the regions nearest to Britain, before they crossed the Channel, to repeat in Britain the conquest of Gaul. Also it is clear that the Iberic tribes had been incorporated into the Broad-heads in the Neolithic Age in many parts of Gaul, and that when the latter invaded Britain they were not of pure stock. They were then "mixed Iberians," as they were later described in Gaul. In Spain they were known as Celtiberians at the dawn of history.

The place of the Broad-heads in question is clearly defined in ethnology. They form, along with the Slavs, one of the three great races of Europe, the other two being the Iberic or Mediterranean, and the Teutonic;¹ and they belong to the older section of the Celtic race,—the Goidels, Q-Celts of Rhys,—represented in the present population by the Gael of Scotland, the Manx and the Irish. If there were other tribes concerned in the Goidelic conquest of Britain their names have perished as well as their language, and they have left no mark in topography.

As the evidence stands at present the Iberic represents the oldest strain in the population of both Britain and the Continent. It was at a later time conquered by the Goidels, the non-Aryan tongue of the former only surviving among the Basques, and the tongue of the latter being Gaelic, now restricted to the British Isles, but proved by the place and river names to have been spoken through the greater part of France, Spain and Italy by the ancestors of the present inhabitants.

IV. THE INCOMING OF THE GOIDELS INTO BRITAIN IN THE BRONZE AGE.

The crania and skeletons described by Mr. H. St. George Gray from the cist at Culbone, near Porlock, and at Wincanton (Tables I, II, III, Chap. XXVII) prove that the invasion by the Goidels of this district had already taken place in the Early Bronze Age. The greater width of the skulls, with cephalic indices ranging from 830 to 840, show that they belong to the section of the Alpine race represented in Britain by the Goidelic Celts, while the early type of beaker found along with them indicates that they are of the same early Bronze Age as the Iberic burials at Wick. In all three cases the dead were interred, and it may be inferred from the beakers being of the same type that the rites of sepulture were practically the same among the two races. They were probably in the same stage of culture, and may even have spoken the same Goidelic tongue and have belonged to the same tribal organization.

There is the same evidence as to the two races living side by side in the Bronze Age over the greater portion of Britain—in Wiltshire, Derbyshire, Yorkshire, the Lake District, and in Scotland. It also holds good in Ireland. The prevailing tongue was Goidelic or primitive Gaelic, and this was spoken in the

1. Ripley, "The Races of Europe," 121.

districts where there are Gaelic names in the topography, or in other words over the greater portion of Britain. Nevertheless it is probable that the ancient non-Aryan tongue of the Iberic tribes still lingered as philological islands, surrounded by a Goidelic sea and continually growing smaller by the dissolving action of time. As examples of such survival down to the present day the names Severn, Wye, and Eure, may be quoted, which have not yet been traced to any Aryan root. In the case of the last there is proof that it is older than Goidelic, in the fact that York (*Eborac*), the city on the Eure, is not on that river but the Ouse, while the Eure, as we know it, becomes the Ouse, at the junction of the Swale near Boroughbridge, some-fifteen miles north of York. The Goidels advancing up the river from the Humber called the river from that point to Boroughbridge the Ouse (= *water*), while for the rest of its course to its source they adopted the native name Eure (= *in Basque water*). At a later time they conquered the whole of the upper watershed of the Eure, introducing their language so thoroughly that the name that they gave to a fishing-pool in Coverdale, Lin dub = Dub lin (= *blackpool*), is still to be found on the 6-inch ordnance maps. Sir Herbert Maxwell notes another case of the survival of "dublin," in the name of a pool in the river Test above Romsey in Hampshire. In both these the name has been handed down from one fisherman to another and is a striking example of continuity from the time of the Goidelic domination in Britain to the present day.

V. THE INCOMING OF THE BRYTHONS INTO BRITAIN IN THE PREHISTORIC IRON AGE.

In Britain, as on the Continent, the use of iron gradually replaced that of bronze, and the civilization that came along with it culminated in the beautiful "Late-Celtic art," and is characterised by the results of the ever increasing intercourse between the British tribes and the Mediterranean peoples,—Greek, Etruscan, and Roman. In this connection we may note the presence of Greek wine-jars in the Eastern Counties, the red Mediterranean coral used in the decoration of brooches in Yorkshire, and of shields, as at Witham in Essex, the Italo-Greek vessels of bronze and silver in Herts and Kent, and the coins copied from those of Greece and of Rome in middle and southern Britain. The introduction of iron coincided with the appearance in Britain of the last of the three racial elements in the pre-Roman population—the Brythons, or the P-Celts of Rhys, who have left in the place and river names an indelible mark of mastery throughout Britain. They undoubtedly brought along with them their dependants of both Iberic and Goidelic stocks, and were more mixed than either the one or the other. It is due to this mixture that I am unable to ascertain their physical characters. The date of this invasion is uncertain, but they were masters of Britain before the

days of Pytheas, 325 B.C. From this time to the Roman conquest tribe followed tribe into Britain from the Continent, the last wave of invaders being the Belgae, who conquered their way westward over Southern Britain, as far as the line of the Parret and the Dorsetshire Stour, and were only prevented by the Roman arms from penetrating further to the west.

The Belgae were of mixed origin (Ibero-Goidelo-Brythonic), and in the time of Caesar there were, in addition, German tribes belonging to the Belgic confederacy in Gaul. We may therefore conclude that the name, Belgae, is of no value so far as relates to race, and is only significant of political unity. Like the term Prussian it covers diverse races, and probably different languages united under one rule.

The Brythonic settlement of Britain was a mastery rather than a general displacement of the older possessors of the land. Throughout Britain the ethnical elements were mixed, the Iberic stock being largely incorporated into the Goidelic, and both being so dominated by the Brythons that the Brythonic speech extended over nearly the whole of Britain.¹

VI. DISTRIBUTION OF RACES IN GAUL AND SPAIN AT THE ROMAN CONQUEST.

We must turn now to the distribution of the Iberic and Celtic peoples on the Continent. In the days of Caesar the Belgae were masters of the land from the Seine and Marne as far north as the Scheldt, and were pressing upon the Brythonic and Goidelic tribes to the south and west. They also in their turn were being pushed southwards by the advance of the Germans in the Rhine provinces. In consequence of this the oldest population, or the Iberian, has been driven to the western parts of Gaul and Spain, their first conquerors, the Goidels, being themselves conquered by the Brythonic tribes. These again were being driven out of Northern Gaul by their kinsmen the Belgae, at the time of the Roman conquest. An appeal to the ancient history of Britain reveals the same elements in the population, in the same relative positions as in Gaul. Just as successive waves of Celts pushed back the Iberian population of Gaul as far south as Aquitania and swept round it into Spain, so they crossed the Channel and overran Britain. Just as the Belgae pressed back the Goidelic and older Brythonic tribes from the Scheldt to the Seine, so they followed them into Britain and took possession of the *pars maritima* (Caesar), or the southern counties. The unsettled condition of the country, at the time of Caesar's invasion, was due to the struggle then going on between the Belgae and the Goidelic and Brythonic tribes. The Iberic population at that time had been pushed westwards to the borders of the Atlantic,

1. Proved by the place and river names,

not only in Spain and Gaul, but also in Britain and Ireland, and were restricted to these areas, where the ethnologist can trace their blood in the very mixed population of to-day.

VII. RELATION OF THE LAKE VILLAGERS TO THE BELGAE.

The Belgic tribes at the time of the Roman conquest had already invaded Britain, and had mastered the region of Kent, and probably Sussex, and the district extending over the Thames Valley from Silchester (*Callewa Atrebatum*) as far as St. Alban's, and were the dominant power in S.E. Britain. Their rule extended to the south-west, as far as the Stour of Dorset and the Bristol Channel between the Avon and the mouth of the Parret, before its progress was stopped by the Roman arms. With the fall of Caratacus the Belgic tribes in Britain sank into the position of provincials. The Belgae described by Ptolemy¹ about one hundred years afterwards are the only section then known in Britain under that name, and are defined by him as occupying the region of Wilts and Somerset and part of Hants. They ranged over the region north of the Durotriges (Dorset), as far north as the district of Corinium (Cirencester) belonging to the Dobuni, and as far as the Bristol Channel between the Parret and the Avon. Among its chief cities were Bath (*Aquae Sulis*) and Winchester (*Venta Belgarum*), and among the subject tribes were the descendants of the Lake-villagers. In my opinion they, like the other mixed Goidelic and Brythonic tribes in south-eastern England, passed under the Belgic rule without their racial characters being affected in any appreciable degree. The Lake-village itself was probably stormed and sacked by the Belgic tribesmen² when they took possession of Somerset, sometime between Caesar's invasion and the Claudian conquest. Its site remained without inhabitants down to the present day, while in other places in the district such as the oppidum of Worlebury, and the cavern of Wookey Hole near Wells, the population returned, and lived throughout the period of the Roman occupation. In this, as in the previous Belgic conquest, the political relations of the conquered were profoundly changed without any similar change in ethnology, and without very much displacement of the possessors of the land.

VIII. RELATION OF THE LAKE VILLAGERS TO THE SILURES.

The Lake-villagers do not, however, stand alone in preserving their ethnical characters down to the Roman conquest. The Silures, the dominant tribe in South Wales, and their neighbours across the Bristol Channel well within sight

1. Ptolemy lived 131-161 A.D.

2. In this connection it may be noted that Salomon Reinach has proved that head-hunting was practised by the Celtic tribes in Gaul. (*Revue Celtique*, 1915).

of the Worlebury oppidum and the Mendip Hills, also maintained their ancestral physique. Among them the Iberic stock was so prominent at the time of the Roman conquest that it is pointed out by Tacitus in his life of Agricola (ch. xi), "The dark complexion of the Silures, their usually curly hair, and the fact that Spain is the opposite shore to them, are an evidence that Iberians of a former date crossed over and occupied these parts." It is with these that the Lake-villagers must be grouped, and if that be accepted we may add to our ideas of them that they were swarthy, with black curly hair, or, in other words, had not lost the characters of their race by fusion with other tribes. There is no room for disputing the accuracy of this remarkable passage, because it was written by the son-in-law of Agricola, the general who conquered the Silures, who had access to all the information brought back to Rome by the officers in command in Britain. In my opinion the Lake-villagers were physically identical with the Silures, and like them had the dark complexion and black curly hair characteristic of the Iberic race.

IX. THE LANGUAGE OF THE LAKE VILLAGERS.

They also had a common language, as may be seen by the study of the place and river names on the ordnance maps of Somerset and of the area in South Wales occupied by the Silures. In both a few names—such as Axe and Usk (= *water*) and Din (= *fort*) in Dinder and Dinham—point back to the time when Gaelic was spoken. In both the Brythonic names predominate, a fact that shows that the same tongue was common to both at the time under consideration, or, in other words, the Welsh now spoken in the Silurian area of South Wales. It was probably the dominant tongue throughout southern and western Britain under the Romans, until it was displaced by the English conquest, finally dying out in Cornwall in the first quarter of the nineteenth century. On the same grounds it may be inferred that it also prevailed in middle and northern Britain and as far as the highlands of Scotland, where the Gaelic tongue survived, and still survives, in areas continually growing smaller by the encroachment of the English tongue.

We may therefore conclude that the Lake-villagers spoke an ancient form of Welsh,¹ and were as familiar with the names of many places in their district as

1. In Somersetshire the English place-names are by far the most common; the Brythonic or Welsh come next, while the Goidelic are comparatively rare. We may note the following in the district under consideration:—

Brythonic.

Avon = *Afon*, water.
 Avalon = *Afall*, apple; *Afallen*, orchard.
 Brean = *Breon*, hill.
 Dolebury = *Dole*, dale.
 Ebbor = *Ebr*, pass.
 Mendips = *Maen*, stone; *deb*, falling;
 debyn, precipice.

Pen = *Pen* Knowle Hill, near Wells.
 Pennard = *Pen*, and *Ardh*, high.
 Pool }
 Pill } = *Pwl*, pool.
 Pylle }
 Pryddy = *Prydd*, earth; *pryddden*, earthy.
 Wookey = *Ogo*, cave.

the citizens of Wells. They knew the peninsula of Glastonbury, converted into an island by a rampart (Ponter's Ball)¹ and deep fosse, as the Ynys Glas, and the Ynys Affalwyn or Isle of Avalon. They knew the Pennards and Pylle, on their road to the east, and on their way to the Mendips passed Ogo, where some of their people lived in the great cave, and reached Priddy by the picturesque pass of Ebbor, returning home with the lead ore from the mines, to be used for weighting nets.

X. THE COMMERCIAL RELATIONS OF THE LAKE VILLAGERS.

The Lake-villagers were in touch with their neighbours by the road passing eastwards from Glastonbury through the Edgarley Dyke, to join the network of prehistoric roads (mostly "ridgeways"), linking the oppida one with another through the greater part of Britain. These roads were undoubtedly used for traffic, by wheels as well as by pack-horse, and along them many of the materials either raw or manufactured were carried,—lead from the Mendips, Kimmeridge shale from Dorset, tin from Cornwall, jet from Yorkshire, and amber from the East Coast. They were also the lines along which the commerce with the Continent was carried on, and by which foreign articles found their way throughout the British Isles. On the Continent also there were, at the time, well defined routes, along which the caravans passed through Gaul, bringing wares from the south in exchange for the products of Britain and the adjacent parts of the Continent. A trunk line started from Massilia² and branched into three in the district of Chalons, one going westwards to the mouth of the Loire, a second northwards to the mouth of the Seine, and a third to the north-east to the Rhine. This last was aimed at the waterway of that river. These main arteries of traffic were in close connection with Italy through the Alpine passes, through which the traders in the Bronze Age brought their wares from Italy into Gaul,³ returning with the products of the regions north of the Alps and ranging as far as the amber coast

The river Parret (? also Puriton) is probably derived from *Peryddon*, the ancient name of the Dee (Fisher, *Archæol. Cambrensis*, 1915, p. 381). In the Anglo-Saxon Chronicle it is *Pedridan*. The Yeo is a variant of the Wye, and means "water," according to Rhys adopted into Welsh from an older tongue.

Goidelic.

Axe = water. Dinder, Dundon, Dundry = *dun*, fort.

The "Ban" in Banwell may be either Goidelic, *white*, or in Brythonic, *high*; and the "Glas" in Glastonbury is *green* in both tongues.

The names that are older than either Brython or Goidel are mostly river names, such as Severn, Ivel, Cary, and perhaps Brue. They may be Iberic.

1. Vol. I, p. 47.

2. Boyd Dawkins, "Early Man in Britain," 475-6.

3. Chantre, "L'Age du Bronze dans la Vallée du Rhone."

of the Baltic. In the Prehistoric Iron Age it was by these routes that the golden staters of Philip of Macedon current in the Greek colony of Massilia (Marseilles) spread northwards through Gaul, being copied by various tribes, until they came to be represented in Britain by a coinage so different from the original, that the connection can only be recognised by the intermediate forms.¹ The presence of these coins proves the existence of a commerce extending from Britain to the Mediterranean. It was along these overland routes that the civilisation of the south of Europe penetrated to the British Isles.

There was also a connection by sea, by ships sailing from Brittany and the mouth of the Loire, to western Britain and to Ireland. Ireland was, as in the Bronze Age, the *El Dorado* of Europe, and the resort of traders who carried golden ornaments of Irish make as far as Scandinavia, the Orkneys and the Loire, as well as to Anglesea, Wales, Dorset, and other places near home. The trade was certainly carried on through the Prehistoric Iron Age into the Historic period, in which the early Irish records prove the direct intercourse by sea with western France and Spain.

There is clear proof also in the pages of Caesar, that, in the first century before Christ, the Veneti, inhabiting the region of Vannes in Brittany, carried on a maritime commerce with Britain, and possessed a large and powerful fleet, worthy of comparison with that of the Carthaginians destroyed in the Punic wars. They were large ships with leathern sails, high poops, and lofty towers, well fitted to stand the Atlantic storms. They were without oars, and therefore fell easy victims to the smaller Roman ships, with banks of oars, in a battle fought near Vannes on a calm day. When we further realise that the other Venice on the Adriatic was founded by a section of the same Veneti, and that other tribes in Northern Gaul,—such as the Cenomani, Senones, and Lingones,—were also neighbours of the Veneti in Italy, it is clear that, at this time, there would be no difficulty in articles from Southern Italy passing northwards to Brittany, and thence by sea from the Venice of the west to the west of Britain. The oblong dice and the mirrors of the Lake-village may have been introduced by this route.

XI. THE IBERIC POPULATION IN BRITAIN UNDER THE ROMANS.

We must now pass from the consideration of the commercial relations of the Lake-villagers before the Roman conquest, to their relation to the inhabitants of the Romano-British Villages of Woodcuts, Rotherley, and Woodyates, all three in Cranborne Chase, on the borders of Wilts and Dorset. In all these the farming

1. Several of these coins are recorded by Evans (*"Ancient British Coins,"* 2 vols.), in various hoards in Somerset, belonging to the period of the Lake-village. One gold coin found at Charterhouse-on-Mendip was struck from the same stamp as one found in the oppidum of Hod.

operations were carried on with the same implements as at Glastonbury. The horses, sheep, cattle and pigs were of the same breeds, and the corn grown in the fields was the same. The villages were inhabited from the time of the Roman conquest down to the Saxon invasion, the coins ranging from the uninscribed British of pre-Roman date down to those of Magnentius (A.D. 350-353) with rude imitations of a later date. They were probably destroyed by the Saxons. These villagers of Cranborne Chase were small in stature, ranging, according to Drs. Beddoe and Garson, from 4ft. 10ins. to 5ft. 4ins., and with three exceptions were of the usual long- or oval-headed Iberic type. The exceptions were probably strangers from the Continent. Dr. Garson¹ holds that the variation in skull form is due to the intermarriage of the Romans and settlers with the native population; and not to crossing with the Celtic Broad-heads. If the following measurements taken by Dr. Garson be compared with those of Table III (Chap. XXVII), it will be seen that here we are dealing with the same stock as at Glastonbury.

DR. GARSON'S MEASUREMENTS OF ROMANO-BRITISH SKULLS.

	Cephalic Index.	Woodcuts.	Rotherley.	Woodyates.
Long-heads . . .	below 750 . . .	5	9	2
Oval-heads . . .	750—799 . . .	7	3	9
Broad-heads . . .	800 and over . . .	1	1	6
		13	13	17

This extension into South Wilts and North Dorset may imply that the south of England generally was occupied at this time by Britons, largely of Iberian blood, who were driven westwards into Devon and Cornwall, and northwards into Wales, by the English invaders, into the regions where the Iberian type is amply represented in the existing population. It still survives in Somerset, Hants and Dorset, in a population that is mainly Saxon.

XII. GENERAL CONCLUSIONS.

It remains now to sum up the results of this enquiry into the physique of the Lake-villagers, and their relation to the other inhabitants of Britain. They are undoubtedly descended from the Iberic stock, or the oldest element as yet traced in the existing European peoples. They were closely related to their neighbours the Silures. They probably lost their Iberic tongue when they passed under the rule of the Goidels, and learned to speak Gaelic, in the Bronze Age. The Gaelic

1. Pitt-Rivers, "Excavations in Bokerly Dyke and Wansdyke," III, 250.

in its turn was supplanted by the Brythonic tongue (Welsh, Cornish, Breton), when the Brythons were masters of the land in the Prehistoric Iron Age. Neither the Belgic nor the Roman conquest left any mark in their physique. Through all the political changes and invasions they maintained a striking continuity of type in the south of Britain until it was finally broken by the spread of the English over the land. As England grew at the expense of Britain the Welsh was supplanted by the English tongue, until over a large part of the country it is only represented by topographical names which convey no meaning to the later inhabitants.¹

The story of the Lake-villagers is, as we have seen, a part of the prehistory of Europe, and cannot be told without dealing with important questions relating to ethnology and commerce. As yet it is a mere imperfect sketch that can only form an adequate introduction to the history of Britain, when it is filled in by future discoveries.

1. Such as Pen Knowle, near Wells, where *Pen*, Welsh for hill, is translated into *Knowle*, Saxon for hill.

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[Compiled by H. St. George Gray].

NOTES.—*The entries in capitals refer to the subjects of complete chapters and the authors of them.*

Unless otherwise stated:—

(1) *All entries refer to the Glastonbury Lake Village;*

(2) *the Pottery has reference, with few exceptions, to the Prehistoric Iron Age;*

(3) *the Fibulae and Brooches are of bronze.*

Hyphenated references, thus 695-9, do not always mean that the subject is continuous throughout the pages referred to, but is often intermittent.

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